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Leach
THE
NEW AMERICAN ORCHARDIST,

OR
AN ACCOUNT OF THE MOST
VALUABLE VARIETIES OF FRUIT,

OF ALL CLIMATES,
ADAPTED TO CULTIVATION

IN
THE UNITED STATES,
WITH THEIR HISTORY, MODES OF CULTURE, MANAGEMENT,
USES, &c.

AND
THE CULTURE OF SILK.
WITH AN APPENDIX ON
VEGETABLES,
ORNAMENTAL TREES, SHRUBS AND FLOWERS.

BY WILLIAM KENRICK.

SECOND EDITION, ENLARGED AND IMPROVED.

BOSTON:
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TO THE HON. JOHN. LOWELL, LL. D. .

SIR,

I AM happy in being enabled to inscribe this work to a gentleman, whose name is so intimately associated with all the great improvements connected with Agriculture and Horticulture, during the last quarter of a century. The many valuable productions, — the donations from Mr Knight, and from other sources, by you so extensively disseminated; your disinterested and distinguished zeal, to encourage and enlighten in all useful pursuits, and especially those to which this work is principally devoted, are not only highly appreciated by cotemporaries, but posterity will know and acknowledge their value.

Please to accept this dedication, not only as an acknowledgement of the many favors received, but as an expression of my high estimation of your manifold and successful efforts in all that concerns the best interests of our country.

With the highest respect and esteem,

Your obedient servant,

WILLIAM KENRICK.

M349392



ADVERTISEMENT TO THE SECOND EDITION.

THE present edition of this work has been revised with very particular attention and care. All the latest and most eminent writers of Europe which have come to hand, having been diligently consulted, and the experience of the most intelligent of our own country. Among the numerous additions and improvements connected therewith, will be found a chapter on "CLIMATE;" a chapter on "MODERN or LANDSCAPE GARDENS;" another on the "USEFULNESS OF FRUITS," for food and health:—The list of these, although so complete in the former edition, is yet in this greatly improved, and especially of those fine new Flemish kinds, and others now added, which have been so lately proved at Chiswick by Mr Thompson, or more latterly approved with us. A Practical Treatise on MULBERRY PLANTATIONS and the CULTURE OF SILK, and the whole class of USEFUL VEGETABLES, are now for the first time added, and all that relates to them.

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ACKNOWLEDGEMENTS TO AUTHORITIES, CORRESPONDENTS, &c.

THE descriptions of the fruits contained in the following pages are drawn from the most authentic testimonies and authorities. Although most of them are already in our country, many of them are *new*, and of very recent introduction, but a portion only of the new kinds have as yet produced fruit with us.

In the descriptions of the new foreign, and to us unknown kinds, I have sometimes adopted the accurate descriptions of the English for the exterior, while for the more important descriptions of the qualities and flavor of these same kinds, I have had recourse to the French authorities, or those possessed of climates analagous to our own. We shall be enabled to speak of them more decisively after having tried them in our own climate.

To the more common or proper names, I have in many cases annexed the Botanical or *descriptive* names of the species or varieties; this being the only *one and universal name*, by which they are alike known in every part of civilized America and of Europe. I have also, to avoid confusion in the nomenclature, endeavored generally to preserve unaltered, the original or proper names, in the language of their own native country. These will serve in a measure to identify, and also to indicate the climate to which they properly belong.

My obligations to Mr Lowell I have elsewhere acknowledged,—and my obligations to Gen. Dearborn, the President of the Massachusetts Horticultural Society. I am also under very particular obligations to Mr Manning of Salem, for the many descriptions he has afforded me. All those articles marked R. M., are described on his authority, and are such as he has proved them to be in our climate. Those marked S. H. S. are on the authority of Stephen H. Smith, Esq. of Providence, R. I.; such have been by him approved as adapted to our climate. To him, therefore, I am particularly indebted. I have availed also of the valuable descriptions in the New England Farmer, of the valuable communications of Mr Downer of Dorchester. Also I have availed of communications from the following gentlemen: Messrs Buel of Albany, S. G. Perkins of Boston, John C. Gray of Boston, Robert Carr, proprietor of Bartram's Botanic Garden near Philadelphia, B. V. French of Boston, John Prince of Roxbury, Micah Leland of Sherburne, Gorham Parsons of Brighton, Wm. Prince and Wm. Robert Prince of the Linnæan Botanic Garden, Flushing, N. Y. These last named gentlemen are the authors of a work on Horticulture, also another on the Vine and another on Fruits; Andrew Parmentier, late of the

Horticultural Garden, Brooklyn, N. Y.; E. M. Richards of Dedham; Leonard Stone of Watertown; E. Voe, jr. of Dorchester; A. D. Williams of Roxbury; Dr S. A. Shurtleff of Boston; Dr Ford of Alna, Me.; Dr Hildreth, of Marietta, Ohio; Dr Holmes, editor of the *Maine Farmer*, Winthrop, Me.; and many others.

LIST OF AUTHORS & WORKS QUOTED OR REFERRED TO.

ADLUM.—Memoir on the cultivation of the Vine in America, and the best mode of making wine, by John Adlum. 12mo. Washington, 1828.

ANNALES D'HORTICULTURE.—Annales de la Société d'Horticulture de Paris, a valuable publication in monthly numbers. 8vo.

BARNET.—Description of the great collection of Strawberries at Chiswick, in vol. vi. Hort. Trans. by James Barnett, occupying 80 pages quarto.

BON JARD.—Le Bon Jardinier, edited by M. Poiteau and M. Villorin, for the year 1828. Paris; a work annually published for nearly seventy years.

BOSC.—Louis Auguste Guillaume Boec, F. L. S. H. S.; author of many articles in *Nouveau Cours Complet d'Agriculture*, and other works.

COBBETT.—American Gardener, by Wm. Cobbett, a celebrated political writer.

COXE.—View of the cultivation of Fruit Trees, &c. in the United States of America, &c., by William Coxe, Esq. 8vo. Philadelphia, 1817.

CHEV. PARMENTIER.—The Chevalier Joseph Parmentier of Enghein; description of various new Fruits in Hort. Trans.

DE CANDOLLE.—L. A. de Candolle, author of several articles in *Nouveau Cours Complet d'Agriculture*. A celebrated writer on Botany, &c.

MR COBB.—Jonathan H. Cobb, Esq. of Dedham, Mass. author of an excellent Manual on the Mulberry and culture of Silk, published by order of the Legislature of Massachusetts, and also by order of Congress.

DOM. ENCY.—Domestic Encyclopedia. by A. F. M. Willch, M. D. Edition of Dr James Mease. 5 vols. 8vo. Philadelphia, 1803.

DUH. O. DUH.—Traité des Arbres Fruitières, par Henri Lewis Duhamel de Monceau. 2 vols. 4to. Paris, 1768.

N. DUH.—Nouveau Duhamel ou Traité des Arbres, Fruitières, Nouvelle édition, Augmentée, &c. formerly conducted by Dr Loiseau Deslongchamps; now still continued by MM. Poiteau and Turpin; several vols. folio, with colored plates. Paris.

ED. ENC.—Edinburgh Encyclopedia. American edition, by Dr Brewster. The article on Horticulture, to which this principally refers, was drawn up by Patrick Neill, Esq.

FES. AMER. GARD.—New American Gardener, containing practical directions on the culture of Fruits and Vegetables, &c. by Thomas G. Fessenden, Editor of the *New England Farmer*.

FORSYTH.—*Treatise on the culture and management of Fruit Trees, &c.*, by William Forsyth, Esq. seventh edition, 8vo. London, 1824.

COUNT DE HAZZI, Counsellor of State of Munich, author of "Complete Instructions for the Plantation and Management of Mulberry Trees, and the REARING OF SILK WORMS." Transmitted by him through Dr Mease to Congress. A professed disciple of the Comte Dandolo and M. Bonafous.

HOOKER.—*Pomona Londinensis*, containing representations of the best fruits cultivated in British Gardens, by William Hooker, Esq. F. L. S. H. S. 4to. with colored plates.

HORT. SOC. CAT.—Catalogue of the Fruits cultivated in the Garden of the Horticultural Society of London, at Chiswick. 8vo. 1826. Also, the Descriptive Catalogue of 1831, which is ascribed to Mr Robert Thompson.

HORT. TRANS.—Transactions of the Horticultural Society of London. 4to. 8 vols.

MR KNIGHT.—Thomas Andrew Knight, Esq. F. R. S. L. S. &c., President of the London Horticultural Society, and the author of nearly a hundred articles in the London Hort. Trans. &c. &c., and author of several works on Rural Economy.

LINDLEY.—A Guide to the Orchard and Kitchen Garden, or an account of the most valuable Fruits and Vegetables cultivated in Great Britain; with calendars of the work required in the orchard and kitchen garden during every month in the year; by George Lindley, C. M. H. S. London, 1831.

LONDON.—*Encyclopædia of Gardening, &c.*, by John C. Loudon, F. L. S. H. S. &c. London, 8vo. 1825. A work of 1233 condensed pages, and several hundred engravings.

LOUDB. GARD. MAG.—The Gardener's Magazine, by the same author. An excellent work in periodical numbers.

MICHAUX.—*The North American Sylva*, or a description of the Forest Trees, &c. with 156 colored engravings, by F. André Michaux. 2 vols. 8vo.. Paris, 1819.

MILLER.—*The Gardener's and Botanist's Dictionary, &c.* by Phillip Miller, F. R. S. 2 vols. folio. Revised by Professor Martyn. London, 1819.

NEILL.—Patrick Neill, Esq. A. M. F. L. S., author of the article on Horticulture in the Edinburgh Encyclopædia, of the "Horticultural Tour," and other works; Secretary of the Caledonian Horticultural Society, &c.

NOUV. COURS COMPLET D'AGRI. COURS COMPLET.—Nouveau Cours Complet d'Agriculture, &c. ou Dictionnaire raisonné et Universel d'Agriculture, by the members of the Section of Agriculture of the Institute of France, viz. M. M. Thouin, Parmentier, Tessier, Huzard, Silvestre, Bosc, Chassiron, Chaptal, Lacroix, de Perthuis, Yvart, de Candolle, du Tour, Du Chesne, Feburier, de Brebisson, and Rosier, (R.) 16 vols. 8vo. Paris, 1823.

PHILLIPS.—*Pomarium Britannicum*; a historical and botanical account of Fruits known in Great Britain; by Henry Phillips, F. H. S. &c. 8vo. London, 1823.

POITEAU.—A. Poiteau, one of the conductors of the *Bon Jardinier* and the *New Duhamel*; and author of many of the articles in *Annales de Horticulture*; &c.

POM. MAG.—Pomological Magazine, or figures and descriptions of the most important varieties of fruit cultivated in Great Britain. 3 vols. 8vo. London, a late work.

PYRUS MALUS BRENT.—*Pyrus Malus Brentfordiensis*, or a concise description of selected Apples, by Hugh Ronalds, F. H. S., &c. with colored engravings.

QUINTINIE.—The Complete Gardener, or directions for cultivating of fruit gardens and kitchen gardens; with divers reflections on several parts of husbandry. In 6 books. By the famous M. de la Quintinie. Made English by John Evelyn, Esq. 1693.

ROSIER.—Cours Complet d'Agriculture, theorique, pratique, economique, &c. ou Dictionnaire Universel d'Agriculture, &c. 15 vols. 4to. Paris, 1801.

DR PASCALIS.—The Silk Culturist, &c. published in numbers, by Dr Felix Pascalis. New York. Also, author of "Practical Directions on the culture of the Mulberry and of Silk," &c.

SPEECHLY.—William Speechly, a Treatise on the culture of the Vine, &c. 8vo.

DR THACHER, author of the American Orchardist, and various other valuable works, on history, medicine, &c. &c.

THOMPSON.—Robert Thompson, of the London Horticultural Society's Garden at Chiswick; distinguished alike for his accuracy, intelligence and research. Much of what is most valuable in the Pom. Mag. is ascribed to him. Also the reputed author of the descriptive Cat. Lond. Hort. Soc. for 1831.

THOUIN.—Monographie de Greffes, ou Description technique de divers sortes de Greffes, employées pour la multiplication des Végétaux, par la Chevalier de André Thouin, Professor, &c. in the University of Paris. Paris, &c. folio, with plates.

VAN MONS.—Dr Jean Baptiste Van Mons. Catalogue des Arbres Fruitiers, &c. Louvaine, 1823. Also, Pomographie Belgique Moderne, 4to. with plates. This work is still in progress, and but a small part of it has been received from him. They are in the Library of the Massachusetts Horticultural Society.

DR WILLICH.—All thus designated refer to the Domestic Encyclopædia: these were drawn from the works of I. L. Christ, a clergyman of Kronburg, near Frankfort on the Maine.

ERRATA.

Page 18, 34th line, for *Pomone Finale*, read *Pomme Finale*.

19, 15th line, for in the tropics, read of the tropics.

31, 12th line, for may be, read may have been.

35, 13th line, for *Boyse*, read *Bosse*.

40, 2d line, for *interruptedly*, read *uninterruptedly*.

45, 30th line, for *Augers*, read *Angers*.

66, 22d line, for *Eppes*, read *Epses*.

114, 11th line for †*Epargne*, read **Epargne*.

114, 35th line, for †*Poire sans Peau*, read **Poire sans Peau*.

115, 35th line, for *Fine or de Septembre*, read *Fin Or de Septembre*.

120, 32d line, *TERLING* is *Terling*.

123, 12th line, for *Trous*, read *Trouz*.

INTRODUCTION.

HORTICULTURE is the most ancient employment ordained by the Creator for man. Its utility and importance have been the pleasing theme of the enlightened in all successive generations. To the poor, — to the rich, — its resources, alike afford subsistence, or a pleasing occupation.

A pursuit so inviting, which allures from cities and their walls, and the haunts of men, to boundless freedom of thought, of action, and repose, — a taste so universal and diffused, seems, indeed, so natural to the human race, that a distaste is considered as a disease of the mind, or as an alteration of its structure, — and as consistent only with a perverted nature — and as opposed to man and his happiness, as the night and its darkness is to day.

And who that admires the consummate works of art, can be insensible to the more beauteous, and glorious works of the Creator — and even the least of them all? “Consider the lilies of the field, how they grow; they toil not, neither do they spin; and yet I say unto you, that even Solomon in all his glory, was not arrayed like one of these.”—Matt. chap. vi. 28, 29.

A science whose pursuits are alike so conducive to the health of the body, and of the mind — so calculated to render mankind useful, virtuous, and happy, has never wanted advocates.

It has found them, with the best, and most enlightened of all ages — with every friend to his country, and to the human race. In our own country it has, and more especially of late, received that encouragement which its utility demands. This is sufficiently evinced, in the simultaneous organization of the numerous societies for its promotion, and that of agriculture. With us, its progress has been

only commensurate, with the indefatigable zeal of a Lowell to enlighten and encourage, and a host in numbers, and renowned in intellect, to co-operate in its advancement.

The Massachusetts Horticultural Society deserve of me also, in this place, a particular notice. This Society although yet in its infancy, has accomplished much. And to the unwearied researches and enlightened zeal of its president, General Dearborn, I am greatly indebted, for much valuable information, which I have to him accredited in the following pages. Also to those numerous individuals, whom I have elsewhere named.

England, by the exertions of their most intelligent and influential men, and by their societies, particularly that of London, has, confessedly, done a great deal for the advancement of the science; and we are greatly indebted to their luminous writers on these subjects; also to those of France and Belgium.

Those selections of fruit—those *select lists*, which the late eminent English writers so highly recommend, were evidently never designed *for us*—but as peculiarly adapted to *other* climes, and to high northern latitudes, and to that country for which alone these celebrated works were principally designed. Since beneath our serene and cloudless skies, and a sun, more powerful and intense in its heat, many of them appear on trial, to have lost that high reputation, which they could only have acquired in a northern country, with a clouded and humid atmosphere; and, with some few eminent exceptions, they will not compare with those natives of our own climate, or with those of other climates equally favored with us. While on the other hand, the finest selections during two centuries, from the innumerable native orchards of America, and the finest fruits from Italy, seem to have shared in that climate, a most disastrous fate. [See Section I. page 15, on Climate.]

These remarks will serve to show the manifest impropriety of adopting without reflection, and without a trial, those *select lists* of fruits, which from necessity alone, are formed on exclusive principles, and as the best adapted to another, and a foreign country, and another climate; and with no reference whatever to a climate like ours.

To the descriptions of the fruits of the divers climes, which are adapted to the various sections of our country, from the north to south, and bordering on the tropics, I

have added the useful vegetable plants, and the trees and plants of ornament. — Also, I have added, a *select list of fruits*, or a recommended list, of a limited number, of those kinds only, which, having been already tried and approved in our climate, can be especially recommended. To many of these I have prefixed an asterisk thus *. But as many of the new kinds, of the highest character, have never as yet borne fruit in our country, and are therefore excluded, it must appear evident, that this list will from time to time require a revision. — *The select — the very best possible list*, and such alone as we should most of all be desirous of offering the public, cannot be formed until all those new and excellent kinds, which this extraordinary age has produced in Belgium, are put to trial in our climate. Their names, their numbers, and their excellence constitute a host, in all probability far greater than all that the former ages had ever produced. For their introduction to this country, much is due the London Horticultural Society, and especially to the distinguished liberality and philanthropy of Prof. Van Mons.

SECTION I. — CLIMATE.

The Territory of the United States comprehends the vast middle section of North America, and is principally included in the best part, or southern half section, of the temperate zone; with a climate one of the most favored, and a soil the most desirable on earth. It extends from the Gulf of Mexico, and the confines of the equatorial regions, and the Lat. of 24° , to the Lat. of 48° and the British possessions on the side of the Atlantic. Southwest is Mexico; and on the West, and looking towards Asia, it is bounded by the shores of the Pacific Ocean; and on the North by the Lat. of 54° and the possessions of Russia.

The climate of the Atlantic States has been generally characterised as variable and inconstant. These sudden changes are caused in a great measure by the conflicting winds, which blow alternately from the opposite points — the sources of extreme heat and of excessive cold. Those especially from the southeast, and south, bring alternately, clouds charged with sultry vapors, or storms of rain, or the fiery particles and intense heat which they have inhaled in the equinoctial regions. While the winds from the northwest are not only dry, but coming over the enor-

mous mountains, covered with ice and snow, and from the immense frozen territories which stretch towards the Arctic regions, and thence westward, and from the great icy ocean towards the pole, they imbibe, at certain seasons, a degree of cold the most piercing and intense. These adverse winds bring by turns, and often by sudden changes, the heat of the tropical, or the extreme cold atmosphere of the polar regions.

The disastrous effects of these sudden changes from heat to cold during the spring, appear to be much more sensibly experienced in the States of the South, than in those of the North. For in the latter States, the frozen earth at its surface, is for the most part protected during winter, at the freezing point, by the usual covering of snow. Vegetation slumbers profoundly secure, immured in our winters so intensely cold, and so fortunately prolonged — nor awakes till the danger is past.

The climate of our country, in regard to its capacity and vegetable productions, is not to be estimated by the measure of its distance from the equator, nor by the average temperature of the *winter*, or even that of the *year* — but rather by the *mean heat of the summer, and its duration*. For while the average temperature, or *heat of the year*, is greater at Rome, and at Marseilles, than at Cambridge, Mass. the *average heat of the summer months may be nearly equal*, since the *mean of the greatest heat* at Cambridge, exceeds that of Rome by 11° — and that of Marseilles by 8° — the mean of our greatest summer heat being 97° ; though 100° and over, in some summers, is not with us uncommon.

From the average of the observations which have been made in 20 cities on the Continent of Europe, the climate of America has been compared. And the proportion of rain which annually falls is two-fifths *greater* with us than with them, or as 50 inches to 30. Yet our rainy days are annually, from a fourth to a third *less* in number, than with them, or as 85 or 90 days of rain with us, to 122 days with them. The rain with us descending in profuse showers, and often in torrents, with tremendous lightning and thunder. While on the other hand, the number of our fair days, or days of sunshine, in the year, is double that of the 20 cities of Europe, or as 130 bright days with us, to 64 with them. In this respect our climate is doubly blessed, in

our serene skies, and our more perpetual and brilliant sunshine.

The climate of a country is variously modified by its situation in regard to mountains and to the ocean. The temperature of the climate on our extensive Atlantic coast, differs considerably from those parts of Europe and of Africa, which lie in corresponding latitudes. In like manner, the climate of our country will be found continually varying, as we advance longitudinally, from its eastern to its western shores.

It has also been observed, that within the temperate zones, the *western coasts* of continents, and large islands, are found to possess a higher mean temperature than the *eastern coasts*. Our climate, on the shores of the Atlantic, must, therefore, correspond nearly with that of the eastern coasts of China, Japan, and Chinese Tartary, and the islands on its coast. And the climate of our country which bounds on the Pacific, may correspond nearly with that of Europe on the coasts of the Atlantic, in the corresponding latitudes.

Elevation above the level of the ocean, has the same effect in lowering the mean temperature, as an increase of latitude. Mons. de Candolle has ascertained, by experiments on some mountains in France, that the elevation of 180 or 200 yards, affects the mean temperature, in the same proportion as a degree of latitude to the north, on that same meridian; and in a similar proportion for any increase of height.

The growth of trees and plants, in rich moist soils, and in warm and protected situations, is not only unusually rapid, but is also prolonged to a very late period in autumn, or until suddenly arrested by frost; and the immature wood of a forced growth being tender, is the more liable to be killed by early frosts and by winter.

On the other hand, those trees and plants which grow on dry and stony or sandy soils, and on the open plains, and on the hills which are most of all exposed to cold winds, the wood completely matures in due season; and such trees are found to suffer least of all from early and destructive frosts, and from winter.

Delicate trees and plants, the natives of southern climes, become more hardy, and more capable of supporting the northern winters, by being planted on the north sides of

buildings and in their shade. Their growth being thus modified, the exposure to the most intense degree of cold, in such situations, is more than compensated by the protection which is thus afforded to the plants during winter, from the pernicious, and far more destructive rays of the sun.

More delicate shrubs or plants, may be protected by being surrounded by a thin covering of straw. They may also be protected by a few inches of litter placed around their trunks, and over their roots. Moss from the meadows, or evergreen boughs, being more incorruptible, are to be preferred for delicate plants. For it has been lately announced, as an important fact, that the destruction of delicate plants which is sometimes occasioned by winter, is caused by the alternate freezing and thawing of the earth at its surface — that death commences at the surface, which this protection will prevent.

The finest fruits of the tropics, when cultivated in countries remote from the equator, lose their good quality and sweetness. In the climate of England, we are assured from undisputed testimony, that the finest peaches of America prove "*worthless*." Even those which confessedly, travellers with us, so much admire, with but two exceptions, prove good for nothing in their hostile climate, not coming to their full maturity and excellence, even on the walls to which their cultivation is confined. Fifty American kinds were contained in their garden, at Chiswick, at the time their account was written. [See Pom. Mag. No. 54. Also, Cat. Lon. Hor. Soc. for 1826.]

The *Pavies* particularly, are there denounced, generally; while in warm countries they are preferred to all others.

Some of the finest apples of America, and of Italy, seem also in that country to have shared a like disastrous fate — and the *Pomone Finale*, or *Mela Carla*, which in the climate of Italy, is reputed to be the finest apple in the world, proves in open culture, in England, but an ordinary fruit, as their writers assure us.

The reverse of this is also true, and many fruits of the north will be found to depreciate, when cultivated in a warmer latitude. And the *White Moscow* or *Astracan*, which by the celebrated M. Christ, is described as a fruit so very extraordinary "*in a suitable situation and climate, which is not under 40° of polar elevation*." This fruit is

pronounced but at mediocrity at Paris, and with us proves an indifferent fruit. And many of the fruits, the natives of England, and of other northern countries, and of high reputation there, have proved but ordinary when brought down to our own latitudes, and compared with our own fruits, and those of climates equally favored with us.

The Cherry tree, the Pear, the Apple, and many other kinds, when carried within the tropics, become unproductive or barren, or the fruit worthless.

The olive and the vine may indeed grow within the tropics; but we are assured they produce little or no fruit, except in the mountainous elevations.

The cereal varieties of grain, the annual plants and productions, those most necessary to the subsistence of man, have by him been acclimated from the borders in the tropics, to very high northern latitudes.

Man himself has become habituated to all climates. The horse, the most noble of animals, and the ox, the most useful, seem, under the guardianship of man, in some measure, aliko constituted. The horse and his rider traverse the earth, from the burning deserts of Sahara, to the frozen regions of Siberia, and the boundaries of the Arctic circle.

SECTION II.—OF MODERN OR LANDSCAPE GARDENS.

In northern latitudes, the location of a garden should be if practicable, on the south side of a hill. Or it may be screened on the cold quarters, either by hills, or by dense and deep borders of evergreen and other forest trees, intermixed with fruit trees and shrubs of ornament. An undulating surface is by all means to be preferred, and water should not be wanting.

The art of *Modern Gardening*, is to form a landscape the most beautiful. Nature having drawn the outline, art must accomplish the rest. Art itself being subservient, or so far concealed, as that all may appear the work of nature alone. Walls and boundary fences should be demolished, or as far as possible concealed. The *ha-ha* is a concealed wall, constructed in the bottom of a dry ditch, and rising no higher than the surface of the earth. Straight lines and right lined walks are to be avoided; and in their stead devious lines only are adopted;—the serpentine, or the gently waving lines, which bring continual and agreeable

change. Striking and agreeable objects in the landscape, whether near or more remote, should be brought frequently, and sometimes suddenly into open view; while unpleasant objects, should from all conspicuous points, be masked from the sight, by shrubbery or by trees. To the hills an artificial elevation may be given by planting their summits with the stateliest trees. And depth is preserved to the valleys, by converting them to lawns. Views of water, it must not be forgotten, are essential to the perfect landscape.

The first garden, of which we have any account on record, was planted by the Almighty, "Eastward in Eden," and in it, every tree that was pleasant to the eye, or useful for food. Out of Eden went a river, which watered the garden; and from thence it was parted into four heads. 1st. Pison, on the side of Havillah. 2d. Gihon, on the side of Ethiopia. 3d. Hiddekel, towards Assyria. 4th. The Euphrates.

The modern style of gardening, in the place of the regular geometric forms, and the right angles, and right lines has substituted all that is more consistent with nature, and with beauty. Celebrated English writers have ascribed this important change in the style of gardening in England, to the ideas of Lord Bacon, as original: but especially to those ideas which have been more latterly promulgated by Milton. I finish therefore by selecting the following perfect description of a garden from him.

"Now nearer, crowns with her enclosure green,
As with a rural mound, the champain head
Of a steep wilderness, whose hairy sides
With thicket overgrown, grotesque and wild,
Access denied; and over head up grew
Insuperable height of loftiest shade,
Cedar, and pine, and fir, and branching palm,
A sylvan scene, and as the ranks ascend
Shade above shade, a woody theatre
Of stateliest view. Yet higher than their tops
The verd'rous wall of Paradise upsprung:
Which to our general sire gave prospect large
Into his nether empire neighboring round.
And higher than that wall a circling row
Of goodliest trees loaden with fairest fruit,
Blossoms and fruits at once of golden hue,
Appeared, with gay enamelled colors mixed:
On which the sun more glad impressed his beams

Than in fair evening cloud, or humid bow,
 When God hath showered the earth; so lovely seemed
 That landscape:" * * * *

"Southward through Eden went a river large,
 Nor chang'd his course, but through the shaggy hill
 Pass'd underneath ingulf'd; for God had thrown
 That mountain as his garden mould high raised
 Upon the rapid current, which through veins
 Of porous earth with kindly thirst updrawn,
 Rose a fresh fountain, and with many a rill
 Watered the garden: thence united fell
 Down the steep glade, and met the nether flood,
 Which from his darksome passage now appears,
 And now divided into four main streams,
 Runs diverse, wand'ring many a famous realm
 And country," * * *

"Thus was this place
 A happy rural seat of various view;
 Groves whose rich trees wept odorous gums and balm,
 Others whose fruit burnish'd with golden rind
 Hung amiable, Hesperian fables true,
 If true, here only, and of delicious taste:
 Betwixt them lawns, or level downs, and flocks
 Grazing the tender herb, were interposed,
 Or palmy hillock; or the flow'ry lap
 Of some irriguous valley spread her store,
 Flowers of all hue, and without thorn the rose:
 Another side, umbrageous grots and caves
 Of cool recess, o'er which the mantling vine
 Lays forth her purple grape, and gently creeps
 Luxuriant; meanwhile murmuring waters fall
 Down the slope hills, dispersed or in a lake.
 That to the fringed bank with myrtle crown'd
 Her crystal mirror holds, unite these streams."

SECTION III. — UTILITY OF FRUITS FOR FOOD AND THE PRESERVATION OF HEALTH.

The fruits of various countries and climes, should be regarded, as one of the most valuable gifts, which divine providence has bestowed upon man. And the cultivation of those of superior kind, should on all accounts be promoted, —not merely as the source of luxury, nor yet alone as a delicious, healthy, and most nutritious article of food; but as connected in other respects, with all that eminently concerns the family of man. "The palate," says the celebrated Mr Knight, "which relishes fruit, is seldom pleased with strong fermented liquors; and as feeble causes continually acting, ultimately produce extensive effects, the supplying the public with fruit at a cheap rate, would have a tendency

to operate favorably, both on the physical and moral health of the people."

The belief is but too prevalent, that fruits produce diseases during the months of summer and autumn, and especially the dysentery. The belief is untrue—and the very reverse is certainly true; fruits being the true preventives of disease. I might amplify on this subject, but must be brief, and will only add as proofs, and from celebrated physicians, the following from the "Annales d'Horticulture," due to the researches of Gen. Dearborn and the New England Farmer, where I have found them inserted. It is from the writer of another country—a country celebrated for the cultivation of good fruit, and alike celebrated for the remarkably temperate habits of its people. "One of the best aliments, and the best appropriated to the different ages of life, is that which fruits afford. They present to man a light nourishment, of easy digestion, and produce a chyle, admirably adapted to the functions of the human body. * * * *

"There are fruits, which, when perfectly ripe, can be eaten even to excess without inconvenience. Such as grapes, cherries, and currants; the other kinds never occasion ill consequences, if they are eaten only to satisfy the demands of nature. * * * *

"Thoroughly ripe fruit, eaten with bread is the most innocent of aliments, and will even insure health and strength.

"In traversing the territories of Germany, there is to be seen near each habitation, a vineyard or a garden of fruit trees. The villages are surrounded with them, and there are but few families who do not make use of fruits during the summer, and preserve a certain quantity for winter. The surplus is sold in the cities. There are to be seen upon the Rhine, and other rivers of Germany, boats laden with dried apples, pears, and plums." * * *

The following from the same writer is from a passage to be found in "*Advice to people upon their health*, by Tissot."

"There is a pernicious prejudice, with which all are too generally imbued:—it is that fruits are injurious in the dysentery, and that they produce and increase it. There is not perhaps a more false prejudice.

"Bad fruits, and those which have been imperfectly ripened, in unfavorable seasons, may occasion colics, and sometimes diarrhoea,—but never epidemic dysentery.

Ripe fruits of all kinds, especially in the summer, are the true preservatives against this malady. The greatest injury they can do, is in dissolving the humors, and particularly the bile, of which they are the true solvents, and occasion a diarrhœa. But even this diarrhœa is a protection against the dysentery. * * *

"Whenever the dysentery has prevailed, I have eaten less animal food, and more fruit, and have never had the slightest attack. Several physicians have adopted the same regimen.

"I have seen eleven patients in the same house; nine were obedient to the directions given, and ate fruit; they recovered. The grandmother and a child she was most partial to, died. She prescribed burnt wine, [*burnt brandy or high wine?*] oil, powerful aromatics, and forbade the use of fruit; it died. She followed the same course, and met the like fate.

"This disease was destroying a Swiss regiment, which was stationed in garrison, in the southern part of France. The captain purchased the grapes of several acres of vines. The sick soldiers were either carried to the vineyard, or were supplied with grapes from it, if they were too feeble to be removed. They ate nothing else; not another died, — nor were any more attacked with the complaint after they commenced eating grapes.

"A minister was attacked with the dysentery, and the medicines which were administered gave no relief; he saw by accident some red currants and had a great desire to eat them; he ate three pounds between seven o'clock in the morning and nine o'clock in the evening; he was better during the day and entirely cured the next."

I might multiply the facts and evidences from different sources; and the writings of other eminent physicians; — but the above must suffice for this time and place. For other important uses I would refer to the account of each particular species, in the following pages.

In new countries, and in new settlements — in places remote, — in the wilderness or on the ocean, — in times of privation, and in the absence of the useful fruits, the taste and habitual use of tobacco, of alcohol, and of strong fermented liquors, has been acquired. The friends of abstinence, who would abolish the use of these, as pernicious, must encourage the cultivation of fruits, as the healthy antidote and useful substitute.

SECTION IV. — OBSERVATIONS ON THE NEW VARIETIES OF FRUITS. MODES BY WHICH THEY MAY BE PRODUCED.

ON THE DECLINE OF THE OLD VARIETIES.

The decline of many of the most valuable old varieties of fruit, has been noticed by several distinguished writers of different countries, both of the present and of the former ages; and in England, particularly, by the celebrated Thomas A. Knight. In our country, and in the vicinity of Boston, it has been more especially observed in regard to the old Pears. For our best varieties of Apples, and some other species, are mostly native fruits, or of modern origin.

Let no one suppose that the intelligent Horticulturists here, have never been acquainted with the best of the old Pears, which the intelligence and industry of ages had concentrated in France. Who is not aware that in every good collection, a proportion of the very best are *always sent*? How opposed alike to reason and to probability is the supposition, that even *one* of the best should have escaped. They must have been here received, in the numerous and ever varying *selections* — in the unnumbered importations.

Rosier, in the original edition of his celebrated Dictionary of Agriculture, which was completed in 1801, has candidly informed us, that for his description of fruits, he is almost wholly indebted to the no less celebrated Duhamel Dumonceau; and from the whole list of Pears which he has described, he has recommended as their essence, for a moderate collection, fiftythree trees of nineteen varieties, in different proportions. These are every one of them known among us; and more than half of them, including the very best, are decidedly of the kinds long since, from their defection, proscribed by those who cultivate for the markets of Boston. And of the list of twelve trees, of nine varieties, which he has recommended as the best of all, for a very small garden, three quarters of them, at least, are of the kinds which have long since ceased to produce perfect fruit, with those who cultivate for our markets.

We regret the circumstance, but have ceased to wonder at the cause — since the same complaints of defection have already reached us from other quarters — even from the capital of that country, for which those celebrated works were principally designed.

I shall, in the following pages, designate some of those,

in the class of old varieties, once the finest of all old pears, whose duration we had hoped, but in vain, to perpetuate. For except in certain sections of the city, and some very few solitary and highly favored situations in the country around, they have become either so uncertain in their bearing — so barren — so unproductive — or so miserably blighted — so mortally diseased — that they are no longer to be trusted ; — they are no longer what they were once with us, and what many of them are still described to be by most foreign writers.

The gentleman who prepared the article on fruits in *Fessenden's New American Gardener*, has warned us to beware respecting some of them. He is well known with us as first rate authority.

In the markets of the city which formerly abounded with them, they are no longer or but rarely to be seen. — The cultivators who furnish its supplies have given up their cultivation. Like the barren fig tree they have been destroyed — but not without cause ; for if they had not been accursed, their fertility and good qualities were gone ; and they were no longer fruitful, but as the sources of vexation.

The practice of renaming those new, or unknown varieties, whose original names are lost, after these old kinds, is objectionable, inasmuch as it is calculated to mislead — and to falsify the proofs of their mortality. From some fancied similitude, the barbarous names of antiquity are brought down upon us, applied to existing varieties. — From semblance of name alone, the Gergon, or Jargon of antiquity has reappeared, — it has been reclaimed, not merely as kindred, but as in all probability *identical* with varieties still existing.*

According to the theory advanced by Mr Knight and others, and confirmed by their experience, the different varieties of fruit have their periods of existence fixed by the

* See t. 108 of the Pomological Magazine, where the authority of Menage and Duchat, and of Merlet are brought forward to justify the supposition, that the Jargonelle, asserted by them to be derived from Jargon, anciently Gergon, in Italian *Gergo*, in Spanish *Gericón*, all corruptions of *Græcum*, and by the inference of Merlet the *Pyrum Tarentinum* of Cato and Columella, the *Numidianum Græcum* of Pliny, the *Græculum* of Macrobius ; that all these, named or described near two thousand years ago, are but one and the same ; and no other than the Jargonelle of the present day.

immutable laws of nature ; and after a certain time, either sooner or later, comes on their decline and final extinction.

I shall offer some evidence to show that the complaints of defection are not confined to us alone—they have reached us from other and remote quarters. Bosc, in *Nouv. Cours Complet*, has asserted the change—that in France many of the kinds have become, from some cause, so altered in the short space of half a century, that it is sometimes difficult to know them, even in the exact descriptions and precise engravings of Duhamel; and with regard to many kinds described by Quintinie, the case is still worse. In the markets of fruits and legumes at Paris, as the Commissaire General has informed us in his report for 1828, some of these same ancient, and with us once celebrated kinds, are no longer cultivated, even with them. He expresses astonishment at the *cause*—but the conclusion seems irresistible, that with them as with us, they are no longer worthy of cultivation ; and that out of that city, and in its vicinity, the country around, these once famous fruits are at this day as liable to blight, and as unworthy of general cultivation as in the neighborhood of Boston.

The following are his words, extracted from his report : “ One is astonished on viewing in the markets of Paris so very few melting Pears. We no longer see the *Sucre Vert*, the *Sucre Musqué*, the *Bezi de la Motte*, nor the *Bezi d’Airy* [*Bezi d’Héri*?]; very few *Chaumontelles*, very few *Culotte de Suisse* ; no *Royale d’Hiver* [Royal Winter], no *Virgouleuse*, and what is to be deplored, no *Colmars*. [Some of these expressions, it seems evident from what follows, were designed to be understood only in a general sense. K.] These three last species sell from ten sous to two francs each, [about forty cents] and their cultivation is neglected !

“ The *Rousselette*, so perfumed, so sought after by the confectioners, and distillers, is no longer of good quality. How different this *Rousselette* from that which they cultivate at the hamlet of Cormontreuil, at the gate of Rheims ! At that place they cultivate the *Rousselette* almost exclusively, and these altogether on espaliers. These espaliers offer at the end of August a sight the most rich and beautiful.” See *Annales d’Horticulture* for 1828.

The unwearied efforts of the most distinguished cultivators of France, during the latter ages, in their attempts

to raise new and valuable varieties of fruits from the seed, appear to have been accompanied chiefly with disaster. And M. Poiteau in one of his reports to the Horticultural Society of Paris, has asserted that the result of all their labor has been "*absolutely nothing*." In adverting to the decline of the old French varieties of Pears, in the vicinity of Paris, and the necessity of a renewal, he asserts that they must look elsewhere for new varieties to replace the old—*any where else but to their own country*.

He informs us that the celebrated Duhamel, during the long course of his scientific career, planted the seeds of all the best fruits which were eaten at his table, without being able to produce a single fruit worthy of cultivation. Others in that country—as the Alfroys, had during three successive generations, adopted the same course, and with no better success.

Their practice had been to plant uniformly, the seeds, only of the very best or ameliorated fruits—and to select from these, as the subjects of their experiments, those young plants only, which were furnished with large leaves, and large and fine wood. M. Poiteau ascribes the disastrous results of their experiments to these combined causes, and further states it as a fact recorded by several authors, that the seeds of the Winter Bon Chrétien always produce a detestable fruit. Mr Knight has asserted that the seed of the *Wild Pear* fertilized by the stamens of the blossom of an ameliorated one, will yield a better fruit than the seeds of an *ameliorated pear*.

M. Van Mons has stated that "the Belgians give *no preference* to the seeds of table fruits, when they plant to obtain new ameliorated kinds." Those seedlings which are *without thorns*, and *with stout wood*, and *large leaves*, are by them *rejected*, as these are the signs of an early or inferior fruit. M. Van Mons ascribes the success of their experiments in obtaining so many fruits, which are in all respects so extraordinary, to the principle which they had adopted in the beginning—that in proportion as a fruit becomes removed from the wild state, or state of nature, by repeated regeneration, or planting always the kernels or stones of the last production, in that same degree will the fruit become ameliorated, until it attains the highest perfection of which a fruit is susceptible.

During the process of the amelioration, and of each suc-

cessive remove, the austerity, or superabundant acid, which is the peculiar characteristic of the wild fruit, is diminished, and the saccharine matter is increased. But as a certain quantity of acid is an essential ingredient in every perfect fruit — it will appear self-evident that the process of regeneration, when carried too far, may prove injurious; and that excessive sweetness, by a short transition, degenerates into insipidity.

It is asserted by Mr Knight, that generally, the old varieties of fruit begin to decay, first, in the colder latitudes; and that a fruit which there begins to decay, may yet be successfully cultivated in a more southern climate, or, what is equivalent, in the confined and warmer atmosphere of cities. Those varieties, therefore, which no longer succeed with us, may yet continue for a while to flourish in the middle regions of the Union, and especially in the interior, beyond the limits and influence of those cold eastern breezes from the Atlantic, which, rising with the diurnal appearance of the sun, visit us so regularly and constantly at stated seasons.

There are some, however, who dissent from these opinions and conclusions — opinions, which, the continued experience of the ages, present as well as past, seems only the more abundantly to confirm. They do not, indeed, deny the *fact* of the destruction, but they *deny the cause*. In their attempts to sustain the credit of the old fruits by rendering them immortal, they would ascribe their deterioration to *any other* cause; — to some supposed *alteration of climate*, and not of ours alone, but of the climate of all those countries where the same proofs of their mortality have appeared.

We await the proofs of such changes; — meanwhile in their absence, I believe all will agree, that in adopting this theory, we adopt the safest course.

Mr Knight and some others in England, and the Comte de Coloma of Malines, have succeeded in raising some new and valuable varieties of fruit from the seeds obtained by hybridism or cross fertilization. In describing the principles and modes of practice of this art, I have had recourse to Phillips, to Knight, and especially to Lindley and M. Fries Morel, to all of them collectively. The same principles are alike applicable to trees of ornament and to flowers. But we are authorized in asserting, that this is

not the mode which has been so generally adopted by Dr Van Mons and others in Belgium — and that the mode by which so many new, and very extraordinary varieties of fruits have been there produced, differs essentially from this which I am now about describing.

The outer circle of the slender threads or filaments, which rise around the centre of the blossom or flower, are called the *stamens*, or males, and the central are called *pistillum*, pointals, or females.

The stamens bear at their summit a small ball called the *anther*, which contains the fertilizing powder called the *pollen*.

At the summit of the pistillum are the organs of secretion called *stigmata*, consisting of one or more intercellular passages leading thence to the base, where are situated the cell or cells in which are placed the ovula, or the rudiments of seeds.

The pollen, when viewed through a microscope, is found to consist of extremely minute hollow balls, filled with a fluid in which swim innumerable particles of an oblong or spherical form, and having an apparently spontaneous motion. When the anther is mature, it bursts or opens with an elastic force, by which its contents are dispersed, and a portion of them falling on the stigma which is of lax tissue, the moving particles of pollen descend through the tissue of the style, by routes specially destined by nature, into the cells, where the ovular are placed, and these being thus vivified, are converted into the seeds or embryo of a future plant.

The operation of hybridizing or cross fertilization must be performed in a dry day, and before the blossom is entirely expanded; the most favorable moment is just before the rising of the sun; the pollen being at that time humid, is closely attached to the anthers. The blossoms must be carefully opened, and the anthers extracted by delicate scissors, care being taken neither to wound the filaments which support them, or any other part of the flower.

About nine o'clock, the blossoms being exposed to the full influence of the sun, the matured pollen from another variety must be carefully placed on the blossom which it is intended to fertilize, and from which the anthers have been extracted; and this operation must be repeated twice or thrice during the course of the day. By shaking the

blossoms over a sheet of white paper, the time when it is perfectly mature will be ascertained. It is necessary to protect the prepared blossoms from the bees and other insects with thin muslin or gauze, which will not exclude the sun or air; and it is proper also to protect them from the rain and dews, till a swelling is perceived in the germ.

By screening the plants from the sun, and by frequent waterings, the maturity of the pollen and the stigma may be retarded.

When the process has been successful, the pollen which had been placed on the stigma, becomes so attached, that it cannot be removed with a hair pencil; it changes form and color and soon disappears, and the blossom will soon wither and fade. But when the process has been imperfect, the reverse of all this is the case; the pollen is easily detached from the stigma, its appearance is unaltered, and it remains visible with the duration of the flower, which will continue for a long time.

The fertilized seeds thus yielded, produce generally flowers which resemble in color, or fruits which inherit mainly the qualities of the kind which furnished the pollen; While the form of the flower, or some of the constitutional qualities of the fruit, will resemble those of the plant which matured the seed.

No cross fertilization can take place between plants or fruits unless nearly related. None, for instance, can take place between the pear, apple or quince; or between the plum, peach or cherry, &c.

Wild plants or fruits while growing in their native wilds are generally perpetuated from generation to generation without change; but this is not the case with the *hybrids* or *cultivated* varieties, however isolated or far removed the tree may be, which produces the seeds, from any other of sit species.

The most intelligent writers have asserted, and it now appears to be admitted as an indisputable fact, that the original number of varieties of the apple were very small, and that the numerous varieties, differing in size, form and flavor and periods of maturity, originated from the *wild apple* or *crab*, a small and very acid fruit. The pear, from a small and very austere wild fruit, has been in like manner wonderfully ameliorated. Mr Knight seems persuaded that their fine varieties of native English plums, originat-

ed from the *Sloe plum*, a wild and austere, small, black fruit—or according to Mr Neill, from the *Bullace*, another wild plum, very small, and acid. The Gooseberry, originally a small, indifferent fruit, has by cultivation, not only highly improved in flavor, but wonderfully in size. The large Dutch red and the large Dutch white currant, are highly productive and improved varieties. But the *white* currant, as Mr Loudon asserts, is but a variety, produced from the seeds of the *red* currant.

Cross-fertilization may, indeed, effect important improvements, by combining in one object, those desirable qualities, which may be previously possessed by two other individuals in separate states. But it can never of itself, and alone, produce or create those opposite qualities, which had never existed before in any individual; but are as directly opposed to all that had ever before existed, as *white* is to *red* or to *black*, and we must look to other causes for such important changes.

The following mode, by which the Belgians have succeeded in obtaining so many new and extraordinary varieties, is from the account written by Dr Van Mons—and for this valuable article, we are indebted to the researches of Gen. Dearborn, by whom this account was inserted in Vol. VII. No. 28 of the *New England Farmer*.

“The Belgians give no preference to the seeds of table fruits, when they plant to obtain new ameliorated kinds. When their plants appear, they do not, like us, found their hopes upon individuals exempt from thorns, furnished with large leaves, and remarkable for the size and beauty of their wood; on the contrary, they prefer the most thorny subjects, provided that the thorns are long, and that the plants are furnished with many buds or eyes, placed very near together. This last circumstance appears to them, and with reason, to be an indication that the tree will speedily produce fruit. As soon as the young individuals which offer these favorable appearances, afford grafts or buds, capable of being inoculated upon other stocks, these operations are performed; the apples on paradise, and the pears on quince stocks, to hasten their fructification. The first fruit is generally very bad, but the Belgians do not regard that; whatever it is, they carefully collect the seeds and plant them; from these a second generation is produced, which commonly shows the commencement of an

amelioration. As soon as the young plants of this second generation have scions, or buds, proper for the purpose, they are transferred to other stocks as were the preceding; the third and fourth generation are treated in the same manner, and until there are finally produced ameliorated fruits worthy of being propagated. M. Van Mons asserts, that the peach and apricot, treated in this manner, afford excellent fruit in the third generation. The apple does not yield superior fruit before the fourth or fifth generation. The pear is slower in its amelioration; but M. Van Mons informs us, that in the sixth generation, it no longer produces inferior, but affords excellent fruits, intermixed with those of a middling quality."

Intelligent writers, those on whom we may rely, have assured us, that the new and numerous class of fruits which have arisen during the last forty years, in Belgium, is far more precious and inestimable in point of quality, than all previously known. They refer in this more particularly to pears.

Highly satisfactory specimens of some of the new species which are described in the following pages, have been seen and exhibited among us; enough to convince us of the decided excellence of at least a portion of them; but as yet but a small proportion of the new foreign varieties here described, have borne fruit in our country.

The unwearied labors of Van Mons of Knight, of Coloma of Hardenpont, of Duquesne, of Nelis, of Liart, of Dorlain and others, have probably effected more during the last forty years, than all that had been previously accomplished during twenty centuries.

All these fruits are recommended as highly deserving of trial in our climate. From them we must make our selections at another day, of such kinds only, as prove on trial, alike adapted to our climate, the very best in quality, and the most productive.

SECTION V.—OF THE GROWTH OF TREES AND PLANTS.

Modern physiologists have demonstrated, that trees and plants derive their nourishment through the extreme ends, and blunt, spongy points of the minute fibres of the roots. These innumerable mouths, or spongelets, absorb and drink in without discrimination, all the fluid substances which come in their way. These fluids ascend through

the alburnum or sapwood to the leaves, which are the true laboratories of all plants as well as the organs of respiration. The circulation of the sap, which commences its movement, first in the branches, and last of all in the roots, is produced by the attraction of the leaf-buds and leaves, which are developed by the warmth of spring—their transpiration requiring supplies so great and continual, that some plants are stated to perspire even twice their weight in twentyfour hours. The true sap thus generated in the leaves, and separated from the more watery particles, descends through the inner bark, having now acquired new powers, and being now peculiarly prepared to nourish and give flavor to the fruit; and continuing its descent, it deposits in its course the cambium or mucilaginous substance, by which new and successive layers of wood and of bark are annually added to the tree; while whatever is not adapted as aliment to the peculiar wants of the plant, is again returned by the roots to the earth.

SECTION VI.—TRANSPLANTING.

When trees are removed for the purpose of being transplanted, their roots should, if possible, be preserved fresh and entire. If these precautions have been omitted, their whole bodies and roots must be immersed in fresh water during twentyfour hours; and their tops must be lessened in proportion to the loss their roots have sustained. The sources by which they derive the nourishment which they receive from the earth, being diminished, the whole sap of the tree, and even its vitality, would otherwise pass off by transpiration.

October and November, and immediately after the first hard frosts have arrested vegetation, is esteemed the best season of all for transplanting trees. The peach, the plum, the cherry and evergreen trees do especially well, when planted early in autumn. But where circumstances render it necessary, transplanting may be deferred till spring.

When trees are transplanted in autumn, the earth becomes duly consolidated at their roots, and they are ready to vegetate with the first advancement of spring.

The holes for receiving the trees, should be dug from four to six feet in diameter, according to the size of the trees usually transplanted, and eighteen inches deep; the yellow subsoil should be cast out to this depth and replaced

at bottom with rich soil intermixed with a portion of manure. The tree should generally be set about two inches deeper than it stood before, but not deeper than this; the fibres should be spread horizontally in their natural position, and the soil intimately and compactly placed about their roots; manure may be placed above and beneath, and on every side, but ought never to be suffered to come in contact with the roots, as it is liable in this case to corrupt and injure them: finish by treading the ground very hard. When evergreen trees are set it is generally considered indispensable to pour at once a few gallons of water around the tree previous to treading hard the earth; finish earthing and tread hard an hour afterwards. This is an excellent and safe mode with regard to any tree.

SECTION VII.—PROPAGATION.

Most of the species of trees and ligneous plants, are propagated by seeds, and some may be propagated by cuttings and all by layers.

BY SEEDS.—In raising trees, &c. from the seeds, it is generally a good rule to plant or sow them as soon as they are mature and gathered from the tree. Those seeds however which are enveloped in a pulp, must first be separated. Those of the hawthorn and many other kinds which are possessed of a gummy or resinous pulp will not vegetate till the second year, unless first separated and subjected to the action of frost, or the seeds of the locust and many other kinds, which are possessed of hard shells and therefore require to be frozen beneath the soil, may be made to vegetate quickly, by being covered with boiling water and set in a warm place; as the seeds become swollen, they are separated and planted, and fresh boiling water is poured over the remainder every twentyfour hours, till all are prepared.

There are many advantages attending the practice of causing seeds of various kinds to germinate before being planted. Such seeds rise at once in advance of the weeds, and strike root downwards while the earth is yet humid and before the scorching sun has dried up the moisture, thus rendering it impossible for any seeds to vegetate near its surface.

Small seeds of many species may be enclosed in small linen bags or in moss or cotton, and steeped a few hours

in lukewarm water; these being suspended, during night in a chimney where a fire has been kept during the day will vegetate by morning. This is an easy mode which has been recommended. More slow growing seeds, after steeping a day in warm water, are to be kept for several days in a lukewarm atmosphere.

Seeds steeped in a weak solution of muriate of lime, or in water containing a few drops of muriatic acid; germinate still more suddenly, and I find it stated on good authority that seeds one hundred and twenty years old, which were brought by Boose from the Bahamas and had resisted every effort to make them vegetate, were yet made to germinate by steeping them in a weak solution of muriatic acid. Boyse of Prussia, has accelerated the germination of seeds by moistening with malic acid (cider).

When seeds are to be transported to distant climates by sea, it is recommended to preserve them in new and finely powdered charcoal; or they may be immersed in a thick solution of gum arabic, and after being dried, they may be closely corked up in glass vessels. Lastly, packing seeds compactly in layers of sugar is found to be an excellent mode of preservation.

LAYERS are the limbs or suckers of trees, bent down without being separated from the parent tree, and covered with soil; their extreme ends only being left out: thus buried, they will soon strike root, generally. Some particular kinds of trees however, with extreme difficulty; such must be tongued, an operation which consists in cutting the layer half off, beneath the surface, and below an eye, and splitting it up an inch or more; the cleft to be kept open by a small wedge. This operation should be performed in spring; and the plant when well rooted may be separated in the autumn or spring following.

CUTTINGS.—There are many kinds of trees which may be raised from cuttings. Cuttings should generally be from eight inches to a foot in length, and cut off at bottom close below an eye, and planted in a humid soil, two thirds of their length beneath the surface, and the ground trodden hard. With some particular kinds however, it is necessary to square the bottom of the cutting, and to press it hard down on the bottom of a pot. Other kinds must be planted in pure sand, and protected from the sun till rooted —

they require artificial heat in the soil, and a confined atmosphere, which moderates their transpiration.

SECTION VIII.—INOCULATING.

Inoculating, is the operation of transferring any particular and desirable variety of tree, upon the stock of an inferior or wild variety. The operation is principally practised on small trees, and only during the time when the sap flows freely, and chiefly during the months of August and September.

Select for the buds the ripest young twigs of the year, and cut off the leaves, leaving the foot stalk entire. Having selected a smooth place in the stock, make a perpendicular slit downward quite through the bark, an inch or a little more in length. Make a cross cut at the top of this slit, quite through to the wood, a little slanting downwards; next with the ivory haft of the knife, raise the bark on both sides from top to bottom, being very careful not to injure in the least the cambium or sap wood. Next, and with expedition, proceed to take off a bud; this is effected by entering the knife half an inch or more below the bud or eye, quite through the bark, and separating the bark from the wood to the same distance above the eye; always leaving a very thin slip of wood of about one third of the length of the bud; this thin slip of wood occupies the middle section of its length. The bud is to be immediately inserted in the stock to the bottom of the slit, and between the bark and the wood; and the top of the bud being squared even with the cross cut, every part except the eye, is firmly bound and covered with strong wet bass matting.

It is by no means a point so very essential, whether the cross cut is made at the top, or bottom of the slit; whether the bud is inserted downwards, or upwards; it generally succeeds equally in both cases. The mode of taking off the bud with a thin slip of wood occupying the middle section of its length, is called the *new* or *American* mode; as I find it described by no European author. It is the mode best adapted to a warm climate. But when the season is far advanced and the sap flows less freely, it is deemed the surest mode to take out the whole of the wood, always leaving the root of the bud.

The string is to be taken off as soon as it begins to girdle the tree, which is generally in about ten days.

In spring, between the time the frost is out of the ground and the rising of the sap, cut off the stock a quarter of an inch above the bud — sloping downwards on the opposite side.

SCALOPE BUDDING is performed by cutting from a small stock, a thin narrow scalloped of wood, about an inch in length; and taking from a twig a thin scalloped of wood of the same length containing a bud; this is instantly applied and fitted perfectly at top and bottom, and on at least one of its sides, and firmly bound with wet bass matting. This mode may be practised in spring, and if it fails, a second chance will be offered in July.—The French are stated to practise this mode on roses.

The above are the principal modes of inoculating adopted in practice, although Professor Thouin has described no less than twentythree distinct modes of operation.

Dr Van Mons buds his roses in June, so that they grow and frequently blossom in the same year. He prepares the young and unripe wood by separating the leaves, leaving only their footstalks; in fifteen days after their buds are swollen, and are now fit for insertion: the stock is cut off six inches above the insertion of the bud, at the time the operation is performed. They are bound with thin strings of bass matting, previously drawn through a solution of alum and white soap, and dried, which renders them impervious to water.

SECTION IX.—GRAFTING.

Grafting is usually performed in spring. Professor Thouin has described forty modes, but the following will answer for all general purposes.

WHIP GRAFTING or *splice grafting*. This mode is practised principally on small stocks; and it succeeds best when the scion and stock are of an equal size.

The scion, which consists of the young wood of the former year's growth, is cut to the length of about four inches. This and the stock are each to be cut sloping for an inch or more, and tongued. Tonguing consists in cutting a slit in the middle of the slope of the stock in the scion downwards, and a corresponding slit upwards; both are now to be nicely joined, so that one of the sides at least, if not both

shall perfectly coincide, and to be securely bound with a wet bass matting string, and covering with composition, or with grafting clay. As soon as the scion and stock are completely united, the string is to be removed.

CLEFT GRAFTING. This mode of grafting is usually practised on stocks of from one to two inches in diameter. It is thus performed. The head of the stock is carefully sawed off at a part free from knots, and the top pared smooth; with a thin knife split down the stock through the centre, to the depth of about two inches, and insert a wedge to keep it open for the reception of the scion. The scion is to be prepared in the form of a wedge; with an eye if possible in the upper part of the portion thus formed, perfect success is the more certain when this is the case. The scion is now to be carefully inserted, so that the inner bark of the scion and of the stock may both exactly meet. Large stocks require two scions, one on each side; sometimes four are inserted. The whole is now to be carefully covered with the composition, or grafting clay, except two or three eyes of each scion. This mode of grafting is equally applicable to very small stocks, but these being weak must be bound with a string of bass matting.

SADDLE GRAFTING. This mode of grafting is performed chiefly on very small stocks — it is much practised by Mr Knight. The upper part of the stock is prepared in the form of a wedge, by two sloping cuts, one on each side. The scion is prepared by splitting it upwards, and paring out the middle part of each side to a point. When the stock and scion are of equal size, the adjustment may be made perfect; but if unequal, one side at least must exactly meet. The whole is secured by a string of matting and covered with the composition, or clay. The string however is to be removed when a perfect union has taken place.

ROOT GRAFTING. This operation is often performed on grape vines, just below the level of the surface, by the usual mode of cleft grafting. It is also performed on portions or pieces of root, where suitable stocks are scarce.

SIDE GRAFTING. This mode is sometimes practised on those parts of a tree where a limb is wanting. — There are two ways in which it is performed. 1st. The scion is prepared in the same manner as for splice grafting, and the

bark and wood on the side of the stock is cut sloping, and the scion being adjusted as carefully as possible, it is bound on and covered with clay. 2d. The scion being cut sloping as in whip grafting, a cross cut is made in the side of the tree on the top of a perpendicular slit; the bark of the tree above the cross cut is pared down slanting to the wood. The bark is now raised as in inoculating, and the scion inserted, and bound fast, and covered with clay.

GRAFTING BY APPROACH. This is often practised on trees and shrubs which succeed with difficulty by other modes. The tree to be grafted must be growing very near the tree which is to furnish the grafts. — The limb or limbs of each tree which is to be thus united, must be pared with a long sloping cut of several inches, nearly to its centre; and the parts of each tree thus prepared, are to be brought together, and firmly secured by a bandage of matting, so that the bark shall exactly meet on at least one side, and covered with clay or composition. When a complete union has taken place, the trees are separated with a knife, by cutting off the stock below the junction. [See herbaceous grafting.]

Grafting clay is made of one third part of fresh horse manure free from litter, one third of cow manure, and one third of good clay, with a small mixture of hair, well beaten and incorporated several days before using.

Grafting composition is made of three parts of resin, three parts of bees' wax, and one part of tallow, melted together; when well mixed, it is poured into water and worked up like shoemaker's wax by hand. This composition may be spread while in a melted state pretty thickly with a brush on very strong brown paper. This paper is to be cut into small stripes of suitable size, and is very quickly applied. In cool weather, it may be instantly warmed with the breath, so as to become adhesive.

SECTION X.—OF FRUITFULNESS.

Artificial means by which fruitfulness is induced. Whatever operates in repressing the too vigorous growth of the tree, by obstructing the free circulation of its sap or juices and by causing it to accumulate, and become concentrated has a tendency to render the tree fruitful.

While a tree is yet young and flexible, and exercised by

every moving breath of wind, its pores continue open, and the sap is rapidly and uninterruptedly diffused; its whole juices are expended in the formation of *leaf buds*. A highly manured soil, a warm temperature and humid atmosphere, are alike unfavorable to the production of flower buds, by promoting excessive vigor in the tree. But as they grow older, their consistence becomes changed and more inflexible; their bark also becomes more thick and rigid, and may therefore operate by compression; and the sap which before passed on uninterruptedly, is now retarded in its progress; it accumulates and develops *fruit buds*, and the tree falls into bearing. To effect this object by artificial means, various modes have been adopted. 1st. By ligatures, or ringing, or girdling; variously termed decoration or circumcision. 2d. By bending their branches or by continually shortening the extremities of the young and growing wood. 3d. By subjecting them to a warm and dry atmosphere. Or lastly, by a combination of each and every mode, as in the case of Chinese dwarf trees and the Quenouilles of the French.

SUBS. 1st. GIRDLING OR DECORTICATION. Girdling, decortication, ringing or circumcision, as it is sometimes variously called, consists in making two circular incisions, quite round the limb, through the bark, at the distance of about three eighths of an inch asunder, more or less, according to the size and thriftiness of the tree; then making a perpendicular slit, the ring of the bark is wholly removed to the wood.

Ringing or Decortication is applicable to every kind of fruit tree, and to the vine. Its operation is two fold. 1st, In the early production and abundance of blossom buds which it induces; or, 2d, In increasing the size of the fruit and hastening its maturity, according to the season in which the operation is performed.

When the design of Decortication is the production of blossom buds, the operation must be performed about the last of June, or beginning of July. But when the object to be attained is the enlargement of the fruit and its more early maturity, the operation must be deferred till just at the time when the tree has come into full leaf in the spring.

Mr Knight, from an experience of fifty years in the practice, observes, that when the space from which the bark is

taken off, is too considerable, a morbid state of early maturity is induced, and the fruit becomes worthless. The same injurious effects he has always witnessed, whenever the operation has been performed upon very young or very small branches, for such become debilitated and sickly long before the fruit can arrive at maturity. A tight ligature, applied in the preceding summer in such cases, he has found to answer all the purposes of ringing, with far less injurious consequences to the tree.

Girdling, according to Mr Knight, by causing the current of the sap, while descending from the leaves through the bark, to become arrested in its progress, it accumulates above the decorticated place, whence it is repulsed and again carried upwards, to be expended in an increased production of blossom buds and of fruit. While the part below, being but ill supplied with nutriment, ceases almost to grow, and in consequence it operates feebly in impelling the ascending current of sap, through the decorticated space. And the parts above, being in consequence, less abundantly supplied with moisture, the early maturity is thus powerfully accelerated, as is always the case in a drought, from whatever cause produced.

Mr Knight, from his long experience, is not friendly to the practice of ringing or girdling in any mode, except only in those few cases, where blossoms cannot otherwise be obtained, or where a single crop of very early fruit exceeds the value of the tree.

Decortication may be practised alternately, on portions of the same tree in alternate years.

SUBS. 2d. DEBARKING. Debarking, according to Mr Neill, is a practice, first brought into notice by Sir John Sinclair in 1815, in a pamphlet. It consists in paring off, in winter, all the outer bark of the stem and principal branches, down to the liber, or inner concentric bark. The effect is, that such plants grow more vigorously, and the quantity and quality of the fruit are greatly augmented.

Mr Loudon has recorded (*Mag.* vol. vii. p. 662) that this operation has been declared by one of the best practical men in the Netherlands, a never failing method of greatly improving the quality and size of the fruit on apple and pear trees, and vines. At the winter pruning, which is given there in February, he cuts off with his common

hooked pruning knife, all the outer bark down to the liber, of every tree above eight or ten years old; not so deeply, however, with the young, as with the old trees. It is asserted by those who have witnessed, that this man's practice has never failed of being successful. And another who has tried it in that country asserts, that since he had practised it, he has always had larger and better flavored fruit. This practice, says Mr Loudon, "is not uncommon in England with apple and pear trees, and very general with regard to vines under glass."

SUBS. 3d. BENDING THE LIMBS. This appears to be the most simple, easy, and effectual mode of rendering trees productive. When judiciously performed, its effects are very extraordinary.

The effects appear to be perfectly understood by the Chinese in training their dwarfs. Its effects are also exemplified in the mode of training trees *en quenouille*, which come into bearing earlier, and bear more abundantly.

Dwarfing is effected by inoculating fruit trees on stocks of comparatively slow growth; the circulation is in consequence retarded, and the effect thus produced is somewhat like that produced, by girdling. The apple is dwarfed by being inoculated on the Paradise or *Doucin* stock; — the peach on a slow growing plum stock; — and the pear by being inoculated on the quince stock. A new mode of dwarfing I shall presently explain. Also on the vine, by which means prodigious crops are produced. [See the article on the cultivation of the vine.] Also in the fig, for by this mode Mr Knight has obtained eight crops in a year. [See the article on figs.] The system is equally applicable to every species of fruit trees. It consists in bending every limb, or twig, to a position below the horizontal, while it is yet in a vigorously growing state, generally the last of June; with some kinds which have a prolonged vegetation, it may perhaps with more advantage be deferred till July, as in the case of the peach. The effect produced in the first instance is a momentary suspension of the growth; the juices are concentrated and form fruit buds, for the production of fruit in the following year.

According to Mr Neill, training the bearing shoots of Pear trees downwards, generally causes them to produce

fruit the second year, which would seldom otherwise produce fruit under six or seven years. And Mr Knight recommends to bend the young, luxuriant shoots of the Peach, instead of shortening [as recommended in the article below,] they thus produce the finest possible bearing wood for the next year.

SUBS. 4th. PARTICULAR MODES OF PRUNING. Mr Dalbret, Superintendent of the compartments in the Royal Gardens devoted to the culture of fruit trees and economical plants, (near Paris,) has delivered a course of lectures on Pruning in the school of Practical Horticulture. He has practised on his theory for a number of years, and is therefore enabled to appreciate its value. "Among the operations which are very rarely practised, and which are scarcely known at a distance from the capital, he has insisted, with propriety, upon the eradication of all useless buds, which occasion more vigor in the branches destined to produce good wood and fruit; and upon the necessity of not leaving too many lateral shoots or twigs, which exhaust the tree; but few should be preserved for yielding fruit each year, and the others should be cut off within a half an inch of the branch, which will cause fruit spurs to appear. He has also demonstrated the utility of pinching or cutting off the ends of the shoots, particularly of stone-fruit trees, to check the excessive vigor of the main branches, and to cause the branches which usually consume the sap, to yield fruit; the operation consists in cutting off the yet herbaceous, or young and tender shoots, when they have attained the length of six or eight inches, at a half an inch, or at most an inch above the old wood; if it is done later, the operation will be injurious, instead of insuring fruit for the third year." [*New England Farmer*, Vol. 8. *This article is from the researches of the Hon. H. A. S. Dearborn, and from the Annales d'Horticulture.*] For some further particulars, see Currant, Also see Peach.

SUBS. 5th. DWARFING. — *Grafting and its effects.* — The effects of grafting in rendering trees suddenly productive is well known. This effect is produced on the principles before explained.

Dwarfs are extensively used in France for almost every

variety of fruit tree, particularly those called *Quenouilles*. And they are asserted by them and the English writers to be not only admirably adapted to large fruits, as they are not so much exposed to high winds, but for pears more especially, they are declared to produce better fruit. A new mode of dwarfing the pear has lately been introduced to practice in France. The quince is inoculated on the pear stock, and after this has grown a year, the pear is inoculated into the quince, an inch above the insertion of the preceding year. The advantages of this mode are many — the section of the quince being thus elevated, is not so liable to the attacks of the borer as at the surface of the earth. The roots of the pear and those of the quince require different soils. [See *Pear and Quince*] It is asserted that the pear should be dwarfed only for the production of summer fruit. As an argument to prove that the fruit of the pear thus produced cannot partake of the austere quality of the quince, it is asserted that both the quince and the pear are alike nourished from the earth by the *same food*, in quality and substance — the leaves being exclusively the laboratory in which the juices are prepared which form the fruit. Even the difference in the varieties of fruit of the same species, in taste and flavor, is supposed to be owing to no other cause than some different and peculiar formation or property of the leaf. The Chinese form their dwarfs on the most fruitful limbs of bearing trees; these when rooted are separated, and when the fruit is at maturity, being much in demand in China, they bring a price in proportion to the crop they bear; especially oranges, peaches, plums, grapes, &c. They even extend their practice to flowering and other ornamental trees.

The following is extracted from the account of John Livingstone, Esq. of Macao. See vol. iv. of the *Lond. Hort. Trans.*

In the spring, at the time when the trees of fruit or of ornament are in blossom, they commence by selecting those branches which are most loaded with blossoms, and remove the bark quite round the branch, to the depth of about half its diameter. This part is covered with a large ball of a composition similar to grafting clay. For large branches of elm, &c. a covering of straw or coarse cloth is used; but for the orange, peach, &c. the composition is of itself sufficient.

When it has been ascertained that the roots formed are sufficient to preserve the living system, and this time varies from six weeks to three months, according to circumstances, from the commencement of the operation, the branches are separated, and after being removed to pots, their fruitfulness is preserved by cramping their growth; by confining their roots in very contracted earthen vessels; in carefully regulating and stinting their supplies of nourishment; in bending and contorting their limbs into many fanciful shapes; and confining them thus by wires. In the province of Fo-kien, where the best dwarfs are said to be formed, to entice ants to destroy the heart wood, sugar is introduced into small openings made for this purpose.

Staunton, in his account of the embassy of Lord Macartney to that country, has stated that straw was used with the clay, and a vessel of water is placed above, with an aperture sufficient to allow the water to fall slowly in single drops. This was the mode in some of the provinces.

SUBS. 6th. QUENOUILLE. This term is applied by the French to trees trained in a regular pyramidal form; from their resemblance to the ancient distaff; they term it *en quenouille*.

In the Department of Maine and Loire, as we are informed in the Annals of the Horticultural Society of Paris, they train their trees *en quenouille*, not only of the pear and apple, but of the peach, the apricot, the plum and the cherry, the vine, and other fruits. The pears for this purpose are inoculated on the quince, and the apple on the Paradise stocks.

The trees they use are principally raised at Augers, where the soil is of such extraordinary fertility, that it is possible to raise a tree or quenouille, with all its lateral branches, in a single year from the bud.

There are some kinds of pears which do not incline to throw out lateral shoots. When therefore the tree has grown to a sufficient height for the first tier of branches, they pinch off the top for their production. When the vertical shoot has risen to a sufficient height for another set of branches, it is pinched off again, and another tier is produced. And thus the process is continued, till the requisite height is attained, and the tree is completely furnished with its branches, from the bottom to the top.

When the lateral shoots incline to grow too fast, these must also be nipped in, that the equilibrium and perfect proportion of the tree may be preserved.

This is an operation which requires much judgment and experience in its application. It is observed that it always causes a momentary suspension of the growth. If the pinching or clipping off be too near the top, but one single and vertical shoot will be produced; if the top be shortened a little lower, two branches only will put forth; but if it be shortened a little lower still, three or four lateral shoots will put out just below, and a top or vertical one.

Mr Loudon in his Magazine has described, "A long row of pear trees in the garden of Chiswick trained *en quenouille*, or more correctly as regards those of Chiswick, *en pyramide*, which with the additional feature of the points of the shoots tied down, has a very fine appearance." * * "In short, this single row of pear trees is the most interesting feature of the garden. The shoots of the current year are bent down *when fully grown*, and fixed in a pendant position by shreds of bass; in the course of the winter these shreds are removed, to admit of pruning, when the shoots are found to have taken a *set*. In the course of the summer, such as grow too vigorously are again tied, the object being to check the vigor of the young shoots, and by impeding the return of the sap, to cause it to expand itself in those young shoots, in the formation of blossom buds."

These pear trees at Chiswick, as Mr Lindley informs us, are all inoculated on the quince; they are trained perpendicularly with a single stem, to the height of about seven feet; with tiers of branches at regular distances, each being generally about eighteen inches long, and the tiers from nine to twelve inches apart. * * * * If the plant be strong and vigorous, it will throw out many more branches than are necessary; these must be trimmed out, the best only being preserved; these are to be tied down, and their luxuriance being thus materially checked, they are in consequence always furnished with fruit bearing spurs; they are productive, and the fruit they produce is far superior to that which is produced on the common standard.



Representation of Quenouille training.

We are further informed that under such management Quenouilles require but little room, a square of four feet each way being deemed sufficient; their fruit being within reach may be easily thinned to enlarge its size; it is more secure against high winds; and being near the ground, the additional warmth it receives, materially insures its ripening in perfection.

SUBS. 7th. — Fruitfulness is induced by a suitable season of *repose*. — The trees and plants, the natives of the temperate climates, require a winter, or *season of rest*; — they awaken in the spring, refreshed by their slumbers, to new life and productiveness. Such trees and plants, therefore, become unfruitful within the tropics, finding no rest, nor their wonted season of repose, except only in the mountainous elevations. Yet in some tropical countries, they gave to their vines, *by artificial means*, a suitable time of rest and slumber; and they awake to fruitfulness for a season. (See Vine and its Cultivation.)

SECTION XI.—PRUNING.

If the branches of a young tree, issuing at and above the requisite height, be made by pruning to diverge from the trunk in every direction above the horizontal, and the interior of these be carefully kept from any interference with each other for a few years, little pruning will ever afterwards be necessary.

The complicated systems of the English for pruning the apple, pear, peach and plum, are not in all respects so necessary for us; they are in part adapted exclusively to a cold climate. It is not necessary with us, to lay open, and expose every part of the tree to the direct rays of the sun: the atmosphere being in our climate, generally, of itself, sufficient to ripen the fruit.

Heavy pruning is seldom necessary or advisable — but when, as in the case of grafting or of heading down for a new growth, it becomes unavoidable, it should always be performed in that interval between the time the frost is coming out of the ground in spring, and the opening of the leaf.

A complete heading for any purpose should never be performed in early summer, or while the tree is in the most active stage of its growth. It causes a sudden stagnation of the juices, and induces a sort of paralysis. And if the tree does not die outright, it grows no more or but feebly, during the remainder of the season.

Yet for that moderate pruning which alone is generally needful, June and July and during the longest days of summer, is the very best time; for wounds of all kinds heal admirably at this period; the wood remaining sound and bright, and even a tree debarked at this season recovers a new bark immediately.

Trees ought not to be pruned in February and March, at the time the frost is coming out of the ground. This is the season when most trees, and particularly the vine and sugar maple, bleed most copiously and injuriously. It causes inveterate canker, the wounds turn black, and the bark for perhaps several feet below, becomes equally black, and perfectly dead in consequence of the bleeding.

The lower side limbs, of young trees in the nursery, should be gradually shortened, but not suddenly close-pruned; — they are essential for a time to strengthen the trunk, and to the upright and perfect formation of the tree.

SECTION XII.—NOXIOUS INSECTS, ETC.

SUBS. 1st. APHIS, PUCERON, VINE FRETTER. Of this genus of insects there are many varieties; they prey on the leaves of different plants. — Various modes for their extermination have been successfully tried. Infusions of tobacco-water, or of aloes, or elder leaves, or of cayenne pepper, thrown on the leaves with a syringe is said to be effectual. Willis's syringe is the best known for this purpose. Sulphur dusted on them with a swandown puff has been highly recommended. Lime water answers in many cases and even soap suds. — Lastly; vinegar is a powerful application.

SUBS. 2d. BORER. The borer is a destructive worm, which perforates the wood of the apple and quince at the surface of the earth or a little below, where the bark is tender. If the insects have once entered the tree, they must be dug out, or destroyed by introducing a sharp flexible wire, and the aperture must afterwards be filled with clay or mortar. The eggs which produce this insect are deposited from the last of April to the beginning of June. To prevent their attacks and secure the trees effectually, nothing more is necessary than to surround it, a little before the season when the eggs are deposited, either with a small conical mound of unleached ashes, or clay, or mortar, or with a wrapper of brown paper, as recommended for the peach. For small trees, a solution of two pounds of good potash in seven quarts of water, applied with a brush, from the height of a foot quite down to the surface, is a very cheap, easy, and effectual mode of preserving trees from their attacks, provided the application is made at the suitable season.

SUBS. 3d. CURCULIO. The curculio, in those parts of the country where it has gained a habitancy, is the most destructive of all enemies to fruit. The curculio is a winged insect or beetle which rises from its earthy bed, and chrysalis state, about the time the young fruit is forming in spring. They crawl up the trees, and when sufficiently numerous, they puncture, and deposit an egg in every fruit, particularly those possessed of smooth skins, as the apricot, nectarine and plum. They are stated to continue

their work of destruction till autumn ; the egg thus deposited, soon hatches, and produces a worm, which preys on the fruit, causing it in most cases to fall prematurely. With those fruits which I have just named, the destruction is usually almost total, in those parts of the country where this insect abounds. Yet it is stated as a fact by Dr Tilton, that of two trees frequently standing so near each other as to touch, the fruit of one has been destroyed and the other has escaped ; so little and so reluctantly do these insects incline to use their wings. After the fruit thus injured, has prematurely fallen and gone to decay, the worms descend into the earth, there they remain during the winter in their chrysalis state, till the warmth of spring again calls them forth to renew their depredations. The cherry, though equally liable to their attacks, yet from the multitude of fruits which they produce, and their early maturity, usually escape with but a partial destruction ; and the peach escapes in a great measure, from the rough and woolly nature of its skin. — The apple, although equally obnoxious to its attacks, frequently survives, although disfigured in its form and lessened in its size. The pear, although sometimes attacked, yet seems to escape the best of them all.

Various modes have been recommended and practised to destroy this insect or avert its attacks. Some have recommended kindling small and numerous fires in the orchard by night, on the supposition that like the miller, they would be attracted by the light, and precipitate themselves into the flames. And some have asserted that the odor of tar annoys and disconcerts them ; and have therefore recommended to suspend slips of shingles to various parts of the tree, which are to be frequently dipped in tar. — If the odor of common tar, has, indeed, been found so efficacious as is asserted, I would recommend that the *coal tar*, which may be purchased at the gas works in all our principal cities, be tried with the same intent. This last substance has, it is asserted, an odor so lasting, and so powerful and annoying, that experiments are making by gentlemen in Nantucket, by covering with this substance the exposed planks of their ships which sail to the Pacific, to preserve them from the destruction caused by the sea worm.

It has been noticed, that trees situated in lanes and extensive yards, where numerous cattle are confined, generally escape the attacks of the curculio. This is supposed

to be in part owing to the ground being trodden so hard as to render it difficult for the worm to enter the earth, and to the annoyance and fright to which this timid insect is subjected, by the cattle rubbing against the trees. The insects, according to Dr Tilton, in such cases of fright, roll themselves into a little ball, and fall to the ground, where they become liable, either to be trodden to death, or devoured by the farm yard poultry as a delicious morsel. Poultry of all species have been recommended as very useful, from the multitudes of insects they devour, they being particularly fond of the beetle tribe.

A case is mentioned by Dr Tilton [see Dom. Ency.] of Col. T. Forest, of Germantown, who having a fine plum tree near his pump, tied a rope from the tree to his pump handle, so that the tree was gently agitated every time there was occasion to pump water. The consequence was, that the fruit on this tree was preserved in the greatest perfection.

Hogs are stated to be extremely useful in orchards, by devouring at once the fallen fruit and the insect which it contains. And provided the hogs are sufficiently numerous to devour every fallen fruit, they will shortly exterminate the insects from the orchard in which they are permitted to roam.

Paving the ground. This is said to be a most effectual mode of preserving fruit from the attacks of the curculio; — by preventing its descent into the earth it finds no winter habitation. The ground should first be well manured, and the whole surface well paved with the common stones which so often encumber the fields. The trees in this case may be set very close. The excess of rain being carried off by the pavement, and their luxuriance being thus restrained, such trees must not only produce great crops, but from the effect of the sun on the naked pavement, the fruit must be of the finest quality. [See what is further said under the article Vine.]

SUBS. 4th. SLUG WORM. These insects sometimes appear on the upper surface of the leaves, especially those of the pear, in the month of July; and sometimes they appear again early in Autumn. They are covered with a glutinous substance, and their destruction is easily effected, by simply sifting slacked lime over them; dry ashes however answers equally as well. For large trees, an oblong tin

vessel, perforated at the bottom with numerous small holes, and partly filled with lime or ashes, may be suspended by a string from a long, slender and elastic pole. This being shaken over a tree, distributes the lime amongst the leaves, and the slugs are speedily destroyed. A man may go over a large tree in a few minutes.

SUBS. 5th. WASPS. Mr Bartram has recommended, for the destruction of wasps which devour and puncture the grapes in vineyards, that shallow vessels, containing sugar and water, or molasses and water, should be placed on the windward side of the vineyard. The sweet perfume attracts them from a great distance from the leeward; they are thus destroyed, by partaking inordinately of the liquid.

Mr Knight has informed us, that the wasps disappeared from his vine house, after he had surrounded it in part with a hedge of the yew tree.

For the destruction of some other varieties of insects, see apple, pear, peach and plum.

SUBS. 6th. THE WHITE MEALY INSECT. This insect is described by English writers as an insect of a most pernicious character, covering the trees and branches. It is little known. I must refer to them for the remedies.

"Take half a peck quick lime, half a pound of flour of sulphur, and a quarter of a pound of lamp black. Mix the whole together with as much boiling water as will form the ingredients into a thick paint. This composition is recommended to be applied to the stems and limbs of apple trees which are infested with the White Mealy Insect, having previously removed the moss and loose bark by scraping them off with a strong knife or some other instrument adapted to the purpose.

"In using the composition, it will be most efficacious if applied, in a warm state, or something more than blood heat."—*Lindley*.

On young trees, Mr Lindley further informs us, "vinegar will effectually destroy this insect; but would be too expensive to be applied when the trees are large."

A P P L E . — (*Pyrus Malus.*)

THE apple is a large, wide spreading tree; the leaves are ovate; the flowers, which are produced on the wood or spurs of the former year or of two years' growth, are in terminating umbels; the fruit is a roundish pome, its base umbilicate, of a color varying from green or white to yellow, to red or violet — of a sweet or subacid flavor.

In its wild state it is denominated a *crab-apple*, and is a thorny tree, with small leaves, and a small, unpleasant acid fruit; and from the crab-apple it is supposed all our finest varieties have been produced by cultivation. The apple is supposed to have been introduced into Britain by the Romans; and although Mr Bartram has described a crab-apple, a native of our country, the *pyrus coronaria*, a globular formed, beautiful yellow fruit, an inch in diameter, excellent for preserving, with blossoms of a gay and beautiful appearance in spring, yet it is supposed that our stock of apples originated not from this, but from Europe.

The apple is said to flourish in every part of the United States, except the low lands of the maritime districts of Carolina, Georgia, and Florida; and the low prairies or savannas bounding on the Gulf of Mexico. And good judges assert that the apples of England and of the North of France, are not to be compared for excellence of flavor, to those produced in our climate.

USES.

Apples, when well ripened, form an exceedingly wholesome food in their raw state; and from the qualities which they possess, their habitual use, according to Mr Knight, destroys the artificial appetite for strong fermented liquors

and the preparations of alcohol. They abate thirst, and boiled or roasted, says Loudon, "they fortify a weak stomach, and are excellent in dysentery, and equally efficacious in putrid and malignant fevers, with the juice of lemons and currants. Scopoli recovered from a weakness of the stomach and indigestion by using them." Dr Willich has also informed us (*Dom. Ency.*) that, "In diseases of the breast, such as catarrhs, coughs, consumptions, &c. in their roasted, boiled, or stewed state, they are of considerable service. They may also be usefully employed in decoctions, which, if drank plentifully, tend to abate febrile heat, as well as to relieve strictures in pectoral complaints." The usual modes of cooking, or preparation for common use, are too well known to need describing.

"Deduit of Mazeres [Philips] has found that one third of apple pulp, baked with two thirds of flour, having been properly fermented with yeast for twelve hours, makes very excellent bread, full of eyes, and extremely palatable. In perfumery, the pulp beat up with lard forms pomatum. And Bosc observes, that the prolonged stratification of apples with elder flowers in a close vessel, gives the former an odor of musk, extremely agreeable. An excellent jelly is thus prepared from them. They are pared, quartered, and the core removed, and put in a closely covered pot, without water, in an oven, or over a fire. When well stewed, the juice is to be squeezed through a cloth, a little white of an egg is added, and then sugar; and lastly it is skimmed, and by boiling reduced to a proper consistence.

Apples are preserved for winter use, by being quartered, and boiled in the unfermented juice of the apple, which has been concentrated by long boiling; but for this purpose the boiling syrup of the sugar cane or molasses is preferred; in some cases it is more economical. Apples are also preserved by drying; first, being pared by machinery constructed for this purpose, and quartered; they are dried either in the sun, or in ovens; in this state they may be long preserved, and form a valuable article for domestic use, for sea stores, or for exportation.

Mr Knight in his treatise on the apple and the pear has informed us, that the juice of both these fruits may be used advantageously on long voyages. He has often reduced it by boiling to the consistence of weak jelly; and in this way, although intentionally exposed to the atmosphere of differ-

ent temperatures, he has preserved it for several years without the slightest change. In this concentrated state it has been supposed that a few pounds added to a hogshead of water might form a good liquor, similar to perry or cider. It might also, as he supposes, answer as a substitute for the rob of lemons and oranges, and at much less expense.

The late Hon. Timothy Pickering has related the account of the efficacy of sweet apples in the cure of a sick horse: it is also stated that horses, cattle, and swine fatten in a remarkably short space of time when fed on sweet apples. It is true, cattle may have been injured by breaking into orchards and devouring at once an inordinate quantity of the forbidden fruit: but this is equally true, when they have broken into cornfields; yet neither are injurious when used as regular food. And it is thought by many that the earliest fruit, the windfalls, may be more profitably consumed by permitting cattle and swine regularly to range the orchards, than by being gathered for the purposes of distillation.

The unfermented juice of sweet apples is sometimes, by boiling, converted into molasses, in those places where this article is not easily obtained. But for the manufacture of molasses it is not altogether improbable that the potato, from some late experiments, may offer in future a much more profitable resource.

VARIETIES.

The varieties of apples are described in three classes.

CLASS I. — Varieties in cultivation in the United States.

CLASS II. — Select Foreign Varieties deserving trial with us.

CLASS III. — Select Varieties for Northern Climes.

NOTE. Those described on the authority of Judge Buel of the first class are considered by him as among the best varieties of that country.

A SELECT DESCRIPTIVE LIST
OF THE
APPLES IN CULTIVATION
IN THE UNITED STATES.

SUMMER APPLES.—CLASS I.

***AMERICAN SUMMER PEARMAIN.** Mr Manning.

The tree bears abundantly. The fruit is of medium size, oblong; of a bright red, streaked and blotched with deeper red next the sun; occasionally a fine yellow ground is visible; the flesh very tender, very juicy, fine flavored, and excellent either for the dessert or for cooking. It ripens the middle of August, and is highly deserving of cultivation.

BEAU. Judge Buel.

"Fruit three inches in diameter, two and one fourth deep. Eye in a regular and shallow cavity. Stalk short, not projecting beyond the base. Skin yellowish green, with a faint blush on the sun side, and dotted with white. Flesh white and crisp. Juice abundant and agreeably acid. A fine dessert and culinary fruit from end of Aug. to Oct."

***BENONI.**

Medium sized, of a fine red color, flavor subacid and good. One of the best apples of the season, ripening the last of July. A native, introduced to notice by Mr E. M. Richards, of Dedham.

CORSE'S FAVORITE. Corse.

Lately originated near Montreal — of extraordinary flavor, as represented by Mr Corse; it there ripens successively from August to October.

***EARLY SWEET BOUGH.**

The size varies from medium to large; the form is oblong; the skin smooth, of a pale yellow color; the stalk is short; the flesh is white, tender, juicy, sweet and excellent. One of the very best dessert apples of its season, which is early in August.

***EARLY HARVEST.**

PRINCE'S HARVEST,
EARLY FRENCH REINETTE, } of Coxé.

The tree is of medium vigor; not very productive. At Salem this variety begins to show evident symptoms of decay. A fruit above the medium size; globular, depressed; of a pale yellow color; the flesh white, juicy, tender, rather acid, but pleasant. Last of July. It is good for cooking.

EARLY RED JUNEATING.

EARLY RED MARGARET,
EARLY STRIPED JUNEATING, } According to the Pom. Mag. and
EVE APPLE, of the Irish, } Lind.

This is not the American variety of the same name. The fruit is rather small; rather oblong; greenish yellow in the shade, of a deep red color with streaks next the sun; the flesh is white, juicy, pleasantly acid. The last of July.

***MAIDEN'S BLUSH.**

HAWTHORNDEN, according to some.

Fine specimens of this excellent fruit have been exhibited by John Mackay, Esq. of Boston, raised on his farm in Weston, and the premium of the Massachusetts Horticultural Society was awarded to him on this fruit in 1833. The fruit is very large and beautiful; flattened; the skin smooth, of a yellow color in the shade, finely contrasted with fine red next the sun; the flesh white, tender and sprightly; remarkably light; fine for the table or for cooking. The tree bears certainly and abundantly. Mr Coxé informs us that it is eminently qualified for drying and is a very popular apple in the Philadelphia market. August to October.

***PORTER.**

The tree is of upright growth, of medium vigor; a good bearer. The fruit above the medium size, oblong, light yellow, with a pale blush next the sun. Its flavor sprightly and pleasant. A popular fruit in the Boston market. This native fruit originated at Sherburne, Mass. on the grounds of the Rev. Samuel Porter.

***PUMPKIN SWEETING, of New England.**

The tree grows vigorous and upright—the leaves very large. The fruit is very large, round, flattened, of a yel-

low russet color; the flesh very sweet and excellent. It ripens from August to October.

***RED ASTRACAN.**

The leaves are long, these and the wood are of a purple color. An eminently beautiful and very early apple of medium size, nearly globular, of a rich crimson color covered with fine bloom. The flesh is white, crisp, and juicy, of agreeable flavor. A new Russian fruit, which proves fine with us.

RED QUARRENDON.

Medium sized, globular or flattened; of a deep red color, approaching to purple, of a sprightly, pleasant and peculiar flavor. A foreign fine fruit. It is productive at the late Gov. Gore's. Aug. to Nov.

SAINT LAWRENCE. Corse.

"A large, beautiful, and excellent fruit, ripening in September." It lately originated near Montreal, where the fruit sells readily for from fifty to sixty cents a dozen. So says Mr Corse, who has lately forwarded the scions.

SAPSON. S. H. S., Esq.

SAPSONVINE.

The fruit is of medium size; of a bright red color, deeply stained in its flesh, which is very juicy and pleasant. A very beautiful fruit, an abundant bearer, and much esteemed. Ripe from August to October.

SOPSAVINE.

A very early summer fruit, of medium size; covered with stripes of red on a greenish yellow ground; a pleasant fruit, ripening the last of July. Not very productive.

***SUMMER QUEEN.** Cox. M.

The tree grows vigorous, its branches incline downward; a great and constant bearer. The fruit is one of the most beautiful known, and of the finest quality for the dessert, or for cooking. It is large, contracted at the crown, fine yellow in the shade, striped with red; fine deep red next the sun. The flesh is yellow, rich, sweet, perfumed. It ripens in August.

SUMMER ROSE. Cox.

A medium sized beautiful fruit, of a round or flattened form; of a bright shining yellow color, streaked or marbled with red; the flesh juicy, sweet, and excellent, either for the dessert or for cooking. Early in August.

***WILLIAMS' APPLE.**

A beautiful fruit, of medium size and oblong form. Its color deep red; flavor sprightly and very pleasant. It ripens the first of August and continues ripening to September. A native fruit, found on the farm of Maj. Benjamin Williams of Roxbury.

AUTUMN FRUIT.—CLASS I.

AMERICAN NONPAREIL. Coxe.

A beautiful and excellent fruit. Medium sized, oblong; contracted at its summit; of a yellow color, streaked and stained with bright red next the sun. Externally it resembles the Hubbardston Nonsuch. The flesh is white, firm, juicy, and good. October and November.

AUNT'S APPLE. Coxe.

The tree grows feeble, but bears most abundantly. The fruit is beautiful, large, oblong. The skin is smooth, streaked with lively red on a yellow ground; the flesh yellow, melting and juicy; of an agreeable flavor, but not rich. A popular market fruit, cultivated extensively in the Eastern counties of Pennsylvania. November.

***BOXFORD or TOWNE. M.**

A very superior fruit — large, flat, and striped with red on a yellow ground. The flesh is tender, and the flavor excellent. A new variety which originated on the farm of Mr Peter Towne in Boxford, Mass. The fruit ripens in September and October, and the tree is a great bearer.

CATLINE. Coxe.

The tree bears young, and abundantly; it is of feeble growth. A fine dessert fruit, rather small, flat; bright yellow in the shade, beautiful red next the sun; the flesh is pale yellow, tender, juicy, sweet, rich. October to winter.

CORSE'S INDIAN PRINCE. Corse.

A seedling, very lately originated by Henry Corse, Esq. at Montreal. It is thus described by him — "Large and very handsome, of very peculiar and good flavor."

CUMBERLAND SPICE. Coxe.

The tree vigorous, and productive. A fine dessert fruit,

large, rather oblong, contracted towards the summit ; the stalk thick and short ; of a pale yellow color, clouded near the base ; the flesh white, tender and fine. It ripens in Autumn and keeps till winter, and shrivels in its last stages.

***DRAP D'OR** of FRANCE, of Coxe and Ronald, but not of Duh. Mr Manning.

The tree is a most productive variety. The fruit fine and highly deserving of cultivation. It is very large, handsome, of globular form, compressed a little at summit and base ; the stalk short ; of a fine yellow color, with occasional faint blotches ; flesh white, firm, and of good flavor. Season, September, October and November.

***DYER.**

So named for Messrs Dyer, of Cranston, R.I., and the gentleman who has lately brought this fruit into notice in Massachusetts. A large apple, round, of a yellowish white in the shade, slightly colored with red next the sun ; the flesh white, juicy, of a rich, saccharine, subacid and excellent flavor ; a superior fruit, ripening in October. It is sometimes called Woodstock.

FALL PIPPIN. Coxe. Pom. Mag.

AMERICAN FALL.

REINETTE BLANCHE D'ESPAGNE.

D'ESPAGNE, DE RATEAU, COBBETT'S FALL, CONCOMBRE ANCIEN. According to Pom. Mag.

This is said to be the national apple of Spain, there called *Camuesar*. The tree is an abundant bearer. The fruit one of the finest and most beautiful of its season ; it is very large, roundish oblong, ribbed at its sides, the stalk very short ; the skin smooth, of a yellowish color, but brownish red next the sun ; the flesh yellowish, crisp, tender, with a very rich, sugary, high flavored juice. It ripens in October and keeps till winter.

FAMEUSE.

POMME DE NEIGE.

A middle sized fruit, of globular or flattened form ; the stalk short, deep sunk ; the skin light green, stained with bright red, with small dark red streaks ; deep red next the sun. Flesh white as snow, very tender ; juice saccharine with a musky perfume. Ripe in October. A dessert apple of a most beautiful appearance. It undoubtedly originated in Canada.

***GOLDEN Russet.**

The tree is very productive. The fruit of medium size ; globular ; of a golden russet color ; rich, juicy, high flavored and excellent. A superior fruit, ripening in November. A variety received of Mr David Towne of Topsfield, Mass. There are several inferior varieties of this name.

(C) *GRAVENSTEIN. Pom. Mag.

Some assign this fruit to Italy, some to Gravenstein in Holstein ; it is said to be the best apple in Germany. The tree grows vigorous and is very productive. The fruit is large, round, but varying in form, angular at the crown ; the eye in a broad deep knobby cavity ; the stalk very short, deep sunk ; color clear straw or yellow, with broken stripes of red next the sun. The flesh pale yellow, crisp, with a juice, vinous and high flavored, fragrant and delicious. Not only a first rate dessert fruit, but its abundant juice, affords excellent cider ; and it is excellent for drying. It ripens in autumn and will keep till into winter. A species of Calville — some suppose there are two varieties. — Gorham Parsons, Esq. has here exhibited specimens of the fruit, and Gen. Dearborn through Capt. DeWolf of R. I. has also introduced the trees from Copenhagen.

JENNINGS' SWEET. Dr S. Hildreth.

A large and most beautiful fruit ; yellow, striped with bright red ; sweet and fine — very fine for baking. The tree is a great and constant bearer. The fruit originated on the farm of Mr Jennings at Marietta, Ohio. October and November.

***KENRICK.**

The tree is of medium vigor, compact form, and very productive. A large round fruit ; pale green in the shade, bright red next the sun ; the flesh stained occasionally with red, is tender ; the juice abundant, of a rich, subacid, and excellent flavor. A native, which originated on the farm of my father in Newton.

***KILLAM HILL.**

A beautiful native fruit from Essex county — one of the most popular in the Salem market. A large, round apple, striped with bright red, deep red next the sun : the flesh very rich ; juice abundant, of a pleasant, subacid and excellent flavor. Season October and November

***LYSCOM.**

A large fruit, striped with red, of excellent quality. It ripens in October, and originated in Southboro', Worcester county, and was introduced by L. Peters, Esq. This fruit is by some called *Osgood's Favorite*.

LONDONDERRY.

A very large, round fruit, rather flattened, and covered with stripes of deep red; the flesh breaking, the juice abundant, of a very rich, subacid and superior flavor. A native of Londonderry, N. H. The tree bears well at Capt. Chandler's in Lexington.

NEWARK KING. Coxe.

A large, beautiful fruit; oblong, contracted towards the crown; with a smooth skin, of a red color dotted with yellow; of a pleasant flavor. The tree is of vigorous growth, spreading, and an abundant bearer. It ripens in autumn and keeps till into winter.

***ORANGE SWEETING. S. H. S., Esq.**

The fruit is rather large, flattened at its base and summit; the color yellow or orange; flesh very sweet and excellent. It ripens in September and keeps till December. This fruit is in high estimation at Providence, where it is brought in sloops from Hartford, Conn. Highly esteemed ere, and wherever known.

RAMBO, OR ROMANITE. Coxe, No. 26.

This apple is much cultivated in Delaware, Pennsylvania and New Jersey; its form is flat, the size middling, the skin pale yellow, with faint red streaks towards the sun; the flesh tender and sprightly; it is much admired as a cooking apple—and is a fine table fruit. It ripens in the fall and keeps several months—a highly popular fruit in the Philadelphia market.

RED CALVILLE.

CALVILLE ROUGE D'AUTOMNE. Bon Jard.

This fruit is of medium size, very beautiful; of conical form; of a fine red color, deep red or crimson next the sun. The flesh stained with red, of a vinous and sweet taste, and the perfume of violets. It ripens in September, and keeps till winter.

RED AND GREEN SWEETING. Coxe.

PRINCE'S LARGE RED AND GREEN SWEETING. Coxe.

The fruit is very large, of a yellow color striped with

red ; covered with deep red next the sun ; the form oblong, somewhat contracted towards the summit ; the stalk short ; the flesh tender and sweet ; a very fine fruit, ripening in September.

***SAWYER SWEETING.** S. H. S., Esq.

This fruit is as large as the R. I. Greening ; its color green in the shade, with a blush next the sun ; it is melting and of a delicious flavor. The tree grows strong and healthy, and the fruit ripens in October and November.

SEEK NO FURTHER, of Autumn.

The tree is of medium vigor ; its branches incline downwards ; a moderate bearer. The fruit is large, round, or conical, of a greenish yellow color, covered with broken stripes of red, especially next the sun ; the flesh yellow, tender, juicy, rich, subacid and excellent. October and November. A New England variety.

SPICE SWEETING. Judge Buel.

Fruit large and fair ; three and one fourth inches by two and three fourths. Skin pale yellow. Flesh tender, juicy, and of a spicy, rich flavor. Season from September till October.

STROAT. Judge Buel.

Above medium size ; rather conical, and regular formed ; the skin smooth, yellowish green. The flesh yellow, uncommonly tender and juicy, and of rich flavor. Judge Buel esteems this superior to any other Autumn fruit. It originated at Kingston, N. Y.

TRIANGLE. Mr Little.

A variety received of Henry Little, Esq. of Ellsworth, Me. It originated on the farm of his father, in Salem, N. H. where it is held in high esteem. He describes it as follows :—A large, yellowish green apple ; conical or pointed ; the stalk deeply sunk ; of a slightly acid, pleasant flavor. It ripens in September and keeps till winter. The tree grows large, in fine form, and bears well.

***YELLOW INGESTRIE.**

The tree bears early and abundantly. The fruit is small, round, of a bright gold color, with pearly specks. Flesh yellowish white, tender, delicate, juicy, rich and high flavored. September and October. Raised by Mr Knight. An eminently beautiful apple, which Judge Buel

has observed, bids fair to rival the Pomme d'Api as a *fashionable* fruit.

YORK RUSSETTING.

Remarkably large, conically formed, and swollen towards the base. Of a yellow color, russeted: the flesh breaking, juicy, subacid and good. Valuable as a market fruit, for cooking, and other purposes. October to December. The tree grows strong. The leaves are large.

WINTER FRUIT. — CLASS I.

AMERICAN GOLDEN PIPPIN. Judge Buel.

A large, yellow, winter fruit, of an agreeable flavor, and highly prized. It has but recently come into notice, but promises to become a standard fruit.

*ÆSOPUS SPITZENBERG.

Large, very beautiful and excellent. The tree grows upright; the young wood is slender and dark. It is very productive. The fruit is oblong, covered with deep scarlet, deepening to dark crimson next the sun. The flesh juicy, of a rich pleasant acid, and high flavor: a celebrated fruit. Season December to March. It originated at New York. The *Flushing Spitzenberg* differs from this, in being round or flat, and the young wood strong and red, and the tree a bad bearer.

*BALDWIN.

This capital variety is a native of Massachusetts; a large, beautiful, and famous fruit. The tree grows vigorous, upright, and handsome. The fruit is round, of a pale color in the shade, fine scarlet or crimson next the sun; sometimes red on every side. The flesh is white, breaking, juicy, rich, saccharine, with a most agreeable acid, and excellent flavor. The tree bears enormously every other year, and in the interval, occasionally a moderate crop.

No apple in the vicinity of Boston is so popular as this, at the present day. It is raised in large quantities for the market. It ripens in November and may be preserved till February and March, and is recommended for extensive cultivation.

BALTIMORE. Hort. Trans. vol. III. p. 120.

A remarkably large apple, raised by Mr Smith near the

city of Baltimore. A large specimen measured in circumference fourteen inches and three quarters, and in height four inches. Its weight twentythree ounces and a half. Its form flat; skin a pale citron, with a faint blush next the sun. Flesh well flavored and close at the core.

BEAUTY OF THE WEST. Judge Buel.

"A very large, fair, and fine flavored sweet apple, presented to me by Mr Morgan, in Jan. and kept till March."

***BELLFLOWER.**

YELLOW BELLFLOWER.

A large and beautiful fruit, of an oblong or conical form; of a bright yellow color, with an occasional blush next the sun. The flesh tender, juicy, rich, and finely flavored, and alike excellent for the dessert or for cooking. It ripens in November and will keep all winter. The pericarpium at maturity is very large, and the seeds rattle when shaken.

BELMONT.

A new and very beautiful fruit, of first rate quality. It was raised in Belmont, Ohio. Specimens brought from Rockport, Cayuga Co. in Ohio, were sent to the Massachusetts Horticultural Society in Jan. 1834, by Charles Olmstead, Esq. of East Hartford, Conn. It is large, round, but broadest at the base; the stalk is short; of a pale straw color, with brown specks, and a faint blush next the sun. The flesh tender, juicy, with a rich subacid and excellent flavor. It keeps till March.

***BLUE PEARMAIN.**

A large beautiful fruit [not uncommon near Boston]; of a dark red color, and covered with a dense blue bloom; it is good for the table, excellent for cooking, and ripens from October to January. The tree grows strong and healthy, and is very productive.

CHANDLER. Gen. Chandler.

The tree is of low growth, and wonderfully productive. The branches very slender and drooping, like the weeping willow; they are covered with the fruit in thick clusters. A variety which originated on the farm of Mr Francis Richardson, in Chelmsford, Mass. It was introduced to notice by Gen. Samuel Chandler, of Lexington, who has exhibited specimens to the Massachusetts Horticultural Society.

COS or CAAS. Judge Buel.

Large, round, depressed at the base and crown ; its form inclined. Eye large, in a broad, slightly angular cavity. The stalk short, thick, in a deep, broad hollow. The skin as smooth as oil, pale yellow, with stripes and specks of red ; stripes and blotches of bright scarlet, dotted with yellow next the sun. The flesh nearly white, tender ; juice sweet and agreeable. December to March. Mr Buel farther states that it is a native of Kingston, N. Y. and a great favorite.

CRAAM or KRAAM. Judge Buel.

"A medium sized sweet apple, in very high repute among the Dutch for winter use." Its color green while immature.

CROW'S EGG.

A remarkably dense apple ; oval, or egg formed ; of medium size. The skin very smooth, and covered with irregular and broken stripes of pale red on a yellow ground ; the flesh very firm, juicy, of a rich and excellent flavor. A variety received of Mr Abijah Fisher of Dedham.

DANVERS WINTER SWEET.*EPPE'S SWEET.**

The tree is very productive. The fruit large and beautiful ; of a bright yellow color, with a faint blush next the sun ; the flesh very sweet and excellent ; fine for the table and baking. It ripens in winter and keeps till April. A profitable apple to raise for the market, and recommended for extensive cultivation. The original tree is growing on the farm of W. P. Endicot, Esq. in Danvers, near Salem. Introduced by Mr Manning.

DARTMOUTH SWEETING. S. H. S., Esq.**HONEY GREENING.**

A large fruit, of a roundish form, contracted towards the summit ; of a pale green color, slightly colored with red next the sun ; the flesh sweet, rich, with a slight and agreeable acid. This fruit is esteemed by many, the best of all sweet apples, and by some the best of all apples. It keeps till May, and the tree is productive.

DOMINI. Judge Buel.

"Above medium size ; the skin greenish yellow, clouded with brown blotches ; the flesh crisp, the flavor highly agreeable." At Kingston, N. Y. it held the first rank as a winter fruit.

DUTCH CODLIN

FRENCH CODLIN. Forsyth.

GLORY OF THE WEST, of some collections.

Fruit very large, oblong, with five ribs extending from the base to the crown; stalk short and thick; skin yellow, but of an orange color next the sun. Flesh white, rather dry, juice a little sugary or subacid. A culinary apple from Michaelmas to Christmas.

***GARDNER SWEETING.**

The tree grows slow, but is very productive. The fruit is above the medium size, round, of a pale color, covered with small specks; a bright blush next the sun. The flesh firm, very sweet and excellent. A fine fruit from December to March.

GOLDEN PEARMAIN. Coxe. Py. Malus.

RUCKMAN'S GOLDEN PEARMAIN. RED RUSSET. Ib.

The fruit is of medium size, flattened; skin russetted; of a dull red color next the sun; the flesh tender, rich, but not abounding in juice. A great and constant bearer. — This variety is valuable for cider.

GREEN SWEETING. Thacher's American Orchardist and N. E. Farmer, Vol. VIII. p. 121.

A large handsome apple of surpassing excellence, abounding in rich syrupy juice. It retains its soundness and flavor even till the middle of June and July. It is an excellent apple for baking, more uniform and abundant in its bearing than trees in general, and is highly deserving of cultivation. It is supposed to have originated in the old Plymouth colony.

GREEN NEWTOWN PIPPIN.

The tree grows very slow, the branches are very slender; the bark very rough. The fruit is of medium size, rather flattened. Prominent, obtuse, and unequal ribs at the crown, extend, diminishing towards the base. Of a dull green color, changing to yellow at maturity; thin russet covering the base. The flesh pale yellow; juice very saccharine, of an aromatic and very rich flavor, with a lively acid. The tree is a great bearer. The fruit retains its flavor and juices till June. This fruit originated at Newtown on Long Island. It has long been celebrated in New York and the Middle States, as one of the first of all apples. Yet to the north of those States, and at Boston, it has never been

so highly esteemed nor so extensively cultivated, as many other native fruits, which have since arisen.

HAMPSHIRE GREENING. Judge Buel.

On excellent authority, this variety stands in the very first class of apples. On that of an Elder, a great traveller, and himself possessing a nursery of many valuable varieties.

HEREFORDSHIRE PEARMAN. Coxe. Py. Mal.

WINTER PEARMAN. Syn. Coxe.

The fruit is above the medium size, slightly ribbed, of a yellow color, covered with bright stripes of red; deep red next the sun; the flesh very juicy and high flavored. A beautiful and excellent apple, either for the dessert or for cooking. October to April. Mr Coxe has added, that this variety is supposed to be the most hardy, and uniformly productive apple, of the Middle States. The tree grows handsome.

***HUBBARDSTON NONSUCH.**

A new and most superior variety, which originated in Hubbardston, Mass. and is esteemed very superior to any other fruit known here, which bears the name of *Nonsuch*. The tree grows vigorous, large, branching and handsome: a prodigious bearer. The fruit is large, globular, or conical; of a yellow color in the shade, but mostly covered with irregular, small and broken stripes of pale red; bright red next the sun; the flesh yellow, juicy, rich, sweet, relieved by a slight acid, and excellent. This capital variety ripens in December and keeps till February, and is recommended for general cultivation.

***JONATHAN.** Judge Buel.

PHILIP RICK, of the Kingston orchards.

A new winter fruit, which for its eminent beauty and excellence, is admired above all others by good judges, in Albany and its vicinity. The fruit is round, two and a half inches in diameter, regular shaped, the eye in a broad deep cavity. The stem three fourths of an inch, slender, in a deep round cavity. The skin thin, pale red, blended with yellow, and deepening into bright red and dark purple next the sun. Flesh very tender, white, occasionally tinged with red. Juice very abundant, rich, and highly flavored. Named for Jonathan Harbrauck, Esq. from whom Mr Buel first received this excellent fruit. The original tree is now growing on the

farm of Mr Philip Rick, of Woodstock, Ulster Co., N. Y. This description of Mr Buel perfectly corresponds with the fruit which he sent me in January, 1834.

LADY APPLE.

POMME D'API.

The tree grows upright, but slowly; the fruit in clusters. It is very small, but very beautiful; rather flattened; the skin is smooth, of a beautiful yellow in the shade, deep red next the sun; the flesh firm, of a pleasant taste, but not high flavored. November to March.

LEMON PIPPIN. Dr S. P. Hildreth.

A fruit of good size, of a yellow color, russeted next the sun; flesh juicy, aromatic, and breaking; and one of the best of dessert fruits; its form is that of a lemon. The tree is a great and constant bearer, and the fruit keeps till January. It originated at Marietta, Ohio.

***MACKAY SWEETING.**

A fine native fruit, exhibited at the Massachusetts Horticultural Society, by John Mackay, Esq. of Boston, the produce of his farm in Weston. A large and beautiful fruit, of a globular form, and fine bright straw color; sweet, slightly acid, and of fine flavor. It keeps well in winter.

MAMMOTH. Py. Mal.

A remarkably large variety of the Newtown Pippin, of an oblong but irregular shape; straw color flushed with light red; the flesh breaks easy and bakes well; it keeps till February or March. The tree grows upright, with broad leaves. This is believed to be an American variety.

MARQUISE. Dr Fiske.

The fruit is of handsome size, of a red color; the flesh melting, juicy, and of very fine flavor. The tree is of upright growth, a good bearer, and the fruit keeps till April. Such is the account of the Hon. O. Fiske, of Worcester, Mass. where this fruit lately originated, and where it is stated, this variety is by good judges, regarded as one of the finest of apples.

MARIGOLD. S. H. S., Esq.

Very handsome, of medium size; striped with red on a yellow ground; the flesh yellow, rich, saccharine, subacid, and fine flavored. The fruit keeps till June. The trees

do not come suddenly into bearing, but afterwards bear good crops.

MICHAEL HENRY PIPPIN. Coxe.

The fruit is large and handsome, oblong, flattened at the base, contracted towards the summit, of a bright yellow color; the flesh is tender, juicy, rich, and high flavored. It ripens in November and keeps well all winter. The tree is upright and handsome, of vigorous growth. It derives its name from that of a resident of New Jersey, who brought it into notice.

MONSTROUS PIPPIN. Coxe.

NEW YORK GLORIA MUNDI. Van Dyne.

A fruit of uncommon size, some have weighed over 27 ounces. The skin smooth, yellow, with numerous spots of white; the stalk short and deeply inserted; the eye very deep. The flesh white, tender, juicy, and good, but not high flavored. Excellent for cooking. Only a few trees of this kind are recommended to enter into a good collection, as from the weight of the fruit it is liable to be blown down by high winds. It originated on Long Island.

MORGAN'S FAVORITE. Judge Buel.

"A variety received with the *Beauty of the West*, of Mr Morgan, and which he considers a superior kind. It is nearly as large as the Russian Alexander, and somewhat resembles it in color and shape."

MURPHY. Mr Manning.

The wood is of a remarkably dark color. The fruit of the same handsome size as the Baldwin, but of a darker red, covered with dark red stripes, and numerous blotches of darker red next the sun; its flavor excellent. Raised from seed by Mr David Murphy, of Salem, Mass. It ripens in November and keeps till January.

***ORTLEY.**

A native of New Jersey. It resembles the yellow Newtown Pippin in its fine flavor and form, but is more oval. The eye large, not deeply sunk; the stalk slender and deeply inserted. Color bright clear yellow, but changing to bright scarlet next the sun. The flesh yellowish, crisp and breaking; juice abundant and fine. An excellent fruit. Season December to April.

PECK'S PLEASANT. S. H. S., Esq.

This fruit is one of the most saleable apples in the mar-

ket of Providence ; the skin is smooth, of a yellow color in the shade, with a blush next the sun ; the flavor is pleasant and good ; an excellent dessert fruit. It ripens from November to February.

***PENNOCK'S RED WINTER.**

The tree bears constantly and abundantly. The fruit is large and handsome, generally flattened, and its form inclined ; of a deep crimson color, with indistinct streaks of yellow in the shade ; dark blotches next the sun. The flesh yellow, tender, juicy, sweet, and excellent. Season November to March. A superior native fruit, highly deserving of cultivation. Some here esteem it equal to the Baldwin. A popular apple in the Philadelphia market.

PICKMAN. R. M., Esq.

A fruit of a globular form, and of a straw color ; its flavor combined with a good portion of acidity, is very rich and good. A winter fruit, fine for the table or for cooking. Very productive and deserving of cultivation. This is much cultivated by Mr Ware at or near Salem, who thinks it a native.

POMME GRISE.

A small round fruit, of a russetty yellow color ; of an excellent subacid flavor. It keeps till winter.

POWNAL SPITZENBERG. Judge Buel.

So named from its native place, Pownal, in Vermont, where the original tree is now growing — also from its resemblance to the *Æsopus* Spitzenberg. It is esteemed a very superior winter fruit.

PRIESTLEY. Coxe.

This fruit is large ; the skin smooth, of a dull red color, striped and spotted with pale green ; of an oblong form ; the flesh is white, of a pleasant aromatic flavor ; an excellent fruit for the dessert or cooking ; the tree is a great bearer and the fruit ripens in December and keeps all winter. This variety originated, according to Mr Coxe, in Pennsylvania, and was first cultivated by a Mr Priestley.

REINETTE BAUMANN.

A new and beautiful fruit of medium size and flattened form ; the color next the sun is brilliant red ; the flavor good. The tree bears abundantly, and the fruit keeps well.

***RHODE ISLAND GREENING.**

JERSEY OR BURLINGTON GREENING, of COXE.

A very large fruit, flattened at its base and summit; at maturity of a yellowish green color, covered with dark clouds or blotches; the flesh yellow, tender, rich, juicy, of an agreeable flavor in which acid predominates. The fruit is at maturity from September to March. This tree is a most abundant bearer every other year, and has been on this account most extensively cultivated in Rhode Island and Massachusetts, and is here preferred for its productiveness to the Green Newtown Pippin.

RIBSTON PIPPIN.

FORMOSA PIPPIN, Hort. Trans.

GLORY OF YORK, Hort. Soc. Cat.

Esteemed by the English a very first rate fruit. A fine fruit with us, but it bears the reputation of a bad bearer. Middle sized, globular; pale yellow, mottled with red next the sun; thinly russeted at the crown; flesh firm, pale, saccharine, agreeably acid, rich, aromatic. December to February.

RED SEEK NO FURTHER. S. H. S., Esq.

A large round fruit, contracted towards the summit; of a fine deep red color. The flavor sweet and excellent, relieved by a slight acid. It ripens in October and keeps till March. The tree is a very great bearer. A Rhode Island fruit.

ROBERTS.

A new and fine variety which originated on the farm of the Rev. Mr Roberts, of Weston, and the fruit was introduced to notice by Mr Jonathan Warren of that place. The young wood is slender, the tree droops like the willow and is abundantly productive. The fruit is large, streaked with red, and of very fine flavor. It keeps well.

***ROXBURY RUSSETTING.**

This fine old variety is a native of Massachusetts. A large fruit, of a globular or flattened form; of a brownish yellow russet color, with an occasional blush next the sun; the skin rough; the flesh white, juicy, rich, subacid and excellent; an old and famous variety, a great and constant bearer; it seldom fails. Great quantities of this fruit are raised in the neighborhood of Boston, for the market and for exportation, and although the Baldwin, the Hubbards-

ton Nonsuch, and perhaps some other winter fruits, far exceed this variety in beauty, and excellence of flavor, and at least equal it in productiveness, the Roxbury Russet surpasses them in its property of long keeping. They are fit for use in winter, and keep till June or July.

SCALLOPED GILLYFLOWER. Judge Buel.

"Described by good judges as far excelling the Black Gillyflower, and much resembling the *Cornish* variety as figured in the Pom. Mag."

***SWAAR.** Judge Buel.

"The Swaar and the Jonathan are esteemed equal, at least, if not superior to the Newtown Pippins and Spitzenbergs. It is of medium size, round, two and three fourths deep and three inches in diameter. Eye medium sized, closed by the calyx. Stalk three fourths of an inch, slender, deeply inserted. Skin greenish yellow, deepening to blush next the sun; thickly dotted with brown specks, intermixed with some of scarlet. Flesh nearly white, firm, heavy, and juicy. Juice rich, and and highly agreeable. Ripe from December to April. Mr Coxe speaks of this as an uncommon fine fruit. *Swaar*, he informs us, implies *heavy*, in the Low Dutch.

WHITE SPITZENBERG. Judge Buel.

A beautiful, fair, and fine flavored fruit, about the size of the *Æsopus* Spitzenberg. It lasts during winter, and commands a good price in our market.

***WINE APPLE.** Coxe. Mr Manning. S. H. S., Esq.

HAY'S APPLE, Coxe syn.

The tree grows large and handsome, and bears abundantly. The fruit is very large and beautiful; bright red next the sun, occasionally a few small stripes and blotches of yellow appear in the shade; the form is globular, a little flattened; the flesh rich and excellent. It ripens the last of October, and may be kept till February or March. A very fine and productive apple and highly deserving of cultivation, and one among the best of apples. Mr Coxe has stated that in New Jersey it is variously called *Large Winter Red* and *The Fine Winter*; that it is not only an admired table fruit, but excellent for cooking as well as for cider; and is one of the most saleable apples in the Philadelphia market.

***WINTER SWEETING.**

SEAFER SWEETING. GRAFTON SWEETING.

The tree grows vigorous and upright, and bears abundantly. The fruit is round or conical; bright pale yellow, with a blush next the sun; the skin smooth; flesh yellow, juicy, sweet, and fine flavored. Very valuable as a dessert fruit, or for baking. November to March.

WINTER WHITE CALVILLE.

CALVILLE BLANCHE D'HIVER. Duh. BONNET CARRE'. Ib.

This fruit is large, of a bright yellow color, with a bright red blush next the sun; its form rather flat and ribbed; flesh white, tender, and pleasant, and worthy of cultivation. It ripens in November, and keeps till March.

YELLOW NEWTOWN PIPPIN.

A large flat fruit, of a bright yellow color, with a faint blush next the sun. The flesh breaking, juicy, agreeably acid, and fine flavored. It keeps during the winter. The tree grows more vigorous, and the fruit appears to be in greater esteem about Boston than the green variety.

YORK SWEET WATER. Genesee Farmer.

A new variety, originated in York, Livingston Co., N. Y. The tree is stated to be an abundant and annual bearer. The fruit very remarkable for its beauty, size, and excellent flavor; its juice very abundant.

CLASS I.—SECTION IV.**CELEBRATED CIDER APPLES CULTIVATED IN THE UNITED STATES.****HARRISON. Coxe.**

The most celebrated cider apple of Newark, New Jersey, where they make so much cider and some of the finest in the world. It is cultivated more extensively there, and particularly on the Orange Mountain, than any other apple. The tree is of strong and vigorous growth, the wood hard, a certain bearer, and wonderfully productive. One tree in Essex county, New Jersey, produced one hundred bushels in a year. It requires ten bushels for a barrel of cider, which is so strong, that it will produce fourteen quarts of distilled spirits. The fruit is below

medium size, rather long, and contracted towards the crown; stalk very long, (hence often called *Long Stem*,) deeply indented at the summit and base; color yellow, covered with many black spots; flesh yellow, firm, tough; flavor pleasant and sprightly, but rather dry; cider rich, sweet, of great strength. The fruit falls about the first of November, is remarkably sound, and will keep well. It originated in Essex county, New Jersey.

TALIAFERO. Hon. J. C. Gray.

The fruit is the size of a grape shot, or from one to two inches in diameter; of a white color, streaked with red; with a sprightly acid, not good for the table, but apparently a very valuable cider fruit. This is understood to be a Virginia fruit, and the apple from which Mr Jefferson's favorite cider was made.

VIRGINIA CRAB.

HEWES' VIRGINIA CRAB. COXE No. 86.

A very small, globular shaped cider apple; its color a dull red, intermixed with streaks of pale yellow; the juice acid and austere. An old and established cider apple. Mr Coxe states that the origin of this apple is satisfactorily traced to Virginia, where trees of nearly a hundred years of age were standing at the time he wrote.

CLASS I.—SECTION V.

VARIETIES FOR ORNAMENT OR FOR PRESERVING.

RED SIBERIAN CRAB.

The tree is of delicate growth, upright and handsome; the leaves shining and beautiful; a profuse bearer. The tree when its fruit is at maturity, has a beautiful aspect, and might at a distance be mistaken for a plum or a cherry tree. A very small and beautiful apple, growing in clusters; of a bright scarlet color at maturity; of a globular form; the stalk long. Its principal use is for preserving, for which it is much admired.

YELLOW SIBERIAN CRAB.

The tree and leaf of this variety are similar to the Red Siberian Crab, and equally beautiful; it is even more pro-

ductive than that variety; and a tree loaded in autumn with its golden fruit, presents to the beholder, a sight the most rich and beautiful. The fruit which grows in large clusters, is of the size of a middling plum, globular; the stalk is long; the color fine clear yellow, or a rich golden hue.

CHINESE DOUBLE FLOWERING. Cours Comp.
d'Agr. Vol. XII. p. 221.

POMMIER DE LA CHINA. Ib.

The tree is handsome and upright, does not grow large; the flowers are large, very double, and in clusters, and are beautiful, resembling small roses, of a delicate rose color. It is not uncommon with us; when in blossom its appearance is superb. According to my authority, it originated in China; the fruit is small, but tolerable for eating.

SOUTHERN APPLES.

The following are stated to be some of the most esteemed varieties of native apples of Virginia. Part are described from the authority of Mr Coxe, and the remainder on the authority of a Virginian, which I extract from that valuable Journal, the New England Farmer, vol. VIII. No. 1. The account of these was thus communicated to the public by Wm. Prince, Esq. proprietor of the Linnæan Botanic Garden, Flushing.

BEVERLEY'S RED.

The fruit is very large, the skin smooth, of a crimson color; flesh very white, of a pleasant flavor. A winter fruit.

CARHOUSE or GILPIN. Coxe.

The tree is a great bearer. The fruit hangs long on the tree in autumn. A small fruit, rather oblong; the skin smooth, of a deep crimson color, with occasional yellow stripes; the flesh yellow, tender, and of good flavor. A native of Virginia; highly esteemed for its excellence as a table fruit in spring; also a good cider fruit.

CURTIS.

The skin is smooth, of a red color; flesh juicy and pleasant. Ripe middle to end of August.

GLOUCESTER WHITE. Coxe.

The tree is of vigorous growth, and beautiful form, and

very productive. The fruit of medium size, its form varying from flat to oblong : of a fine yellow color, clouded with spots of black. The flesh yellow, breaking, juicy, rich and delicious. It ripens early in October. And according to Mr Coxe, is not only a most excellent dessert fruit, but makes exquisite cider. Much cultivated and of high reputation in the lower counties of Virginia.

LIMBER TWIG.

Branches drooping or pendant ; the fruit is of a greenish color, with a blush next the sun ; the flesh very juicy, and pleasant at maturity. Winter. It keeps a long time.

PRYOR'S RED.

The fruit is very large ; color brownish red ; its flesh at maturity juicy, and very fine. A winter fruit.

RAWLE'S JANET or ROCKRIMMON.

The form is globular, flattened ; the color red and green ; flesh very fragrant, more juicy, and of superior flavor to the Newtown Pippin, and keeps equally as well.

ROYAL PEARMAIN. Coxe.

Fruit fine, of a large size, flattened ; skin rough, of a fine russet color, but red next the sun, and faintly streaked with russet ; flesh a rich yellow, firm, but at maturity tender, sweet, and of very sprightly flavor. A good table apple ; excellent for cider ; and highly esteemed by the planters of Virginia, near Richmond, from whence Mr Coxe procured it. The tree bears uniformly and abundantly. It ripens in October and will keep till February or March.

STRIPED JUNE APPLE.

The fruit is as fragrant as a pine-apple melon. It ripens the last of June and beginning of July.

SUMMER CHEESE.

Brought from Old Jamestown seventyfive years ago ; a delicious fruit.

VIRGINIA GREENING.

The fruit is of medium size ; color green, striped with red ; flavor very superior. A winter fruit.

WAXEN APPLE. Coxe.

The fruit is large, its form flattened, and inclined ; the color yellow ; flesh firm, breaking, juicy, rich, sprightly. It is much esteemed in Virginia. December.

CLASS II.

SELECT FOREIGN VARIETIES OF APPLES DESERVING TRIAL IN THE CLIMATE OF THE UNITED STATES.

SUCH AS MAY PROBABLY SUCCEED WITH US. ALL DESCRIBED FROM FOREIGN AUTHORITIES.

The following list consists of celebrated French, German, and a few Italian apples. Also the principal part of those kinds which Mr Ronald, from his great judgment and experience, has stated are rendered exquisite on their walls. Such, evidently need a climate like ours, to bring them to their full maturity and excellence. Except these, I believe I have brought down to our latitudes but twelve other varieties of English apples; all celebrated for their excellence, for the dessert, cooking or for cider; and six of these were either originated by Mr Knight, or sent to us by him. Also two highly celebrated Russian apples. I have, however, I must confess, far greater hopes in those very kinds, which, like some of our best American varieties of fruit, prove good for nothing in England, except on their walls. — I mean the celebrated Italian-apples, for reasons I have stated in the INTRODUCTION, and under the head of CLIMATE. Also for other reasons stated at the head of Class III.

Gentlemen of intelligence and judgment who have resided both at Paris and in England, have assured me that the apples of those places are not comparable to ours. The late Governor Eustis, I have good authority for stating, expressed the same opinion. This may in part be ascribed to our brighter skies, and more constant and powerful sunshine during summer; and a gentleman of Salem who has here made trial of a great many celebrated varieties of English apples, has lately stated to me, that he has been disappointed in them.

R. Kinds particularly recommended by Mr Ronald, as being rendered exquisite on walls and highly deserving such a situation.

P. Kinds designated by Poiteau, as the best in general cultivation in France, and by him particularly recommended.

C. Kinds described by Dr Willich from the celebrated German writer, M. Christ.

K. L. Kinds sent by Mr Knight to Mr Lowell.

CLASS II.—SECTION I.

SUMMER FRUIT.

CALVILLE ROUGE DE MICOUD. London Hort. Trans. Vol. v. p. 242. M. Thouin.

The account of this extraordinary tree and its fruit, is from a communication of M. Thouin. This tree, which produces three crops of fruit annually, originated on the farm of the Baroness de Micoud, near La Charité sur Loire, in the department of the Nièvre, and bears three thousand apples annually. The tree is striking in its appearance; "dense, dark green, shining foliage during three fourths of the year, enamelled with numerous clusters of delicate rose colored blossoms, and scattered over with fruit of a diversity of color, renders it a most interesting object of cultivation, especially as an ornament to our lawns and shrubberies, producing an effect not less novel than agreeable." The first flowering is in April and abundant. The fruit of the first crop is globular, depressed; its height two inches, its diameter nearly three; of an angular appearance; the color deep dull red next the sun. The flesh is yellowish white, fine, breaking, juicy, a sweetish acid, and agreeably perfumed, with a crystalline appearance. It commences ripening the middle of July, and the fruit is mostly ripe in August, and continues ripening till November. The second flowering is in June, and is less abundant than the first. The fruit of the second crop is fit for the table in the end of October; they are the size of hens' eggs, and are of equal good quality with the first. The third flowering takes place in August, September, October and November; the fruits are small, no larger than the Pomme d'Api; they are checked in their growth by frost; but will ripen in doors, and may be eaten raw, but if roasted or stewed they acquire a sweet and delicious flavor.

KESWICK CODLIN. Lindley. Py. Mal.

One of the most useful and productive of all apples except the Hawthornden; rather large; ribbed at its sides; pale yellow; very juicy, subacid; it answers for tarts even in June.

(C.) STREAKED ROSE APPLE. Dr Willich.

POMME ROSE PANACHE. Ib.

A very early and beautiful fruit, of a delicious flavor and taste; of medium size, rather oblong; of a fine red color, mingled with yellow in the shade, and streaked with deep red next the sun; and covered all over with dots of deep yellow. Flesh glossy white, with rose colored streaks, mellow and uncommonly mild. The tree of medium size. August.

CLASS II.—SECTION II.**AUTUMN FRUIT.****(R.) BRADDICK'S NONPAREIL.** Hort. Trans. vol. III. p. 268. Lindley. Py. Mal. Pl. xxxiv.

A valuable dessert apple raised by John Braddick, Esq. Sweeter and superior to the old Nonpareil; middle sized, globular, flattened; skin smooth, brownish red next the sun; juice sugary, rich, aromatic. October to January.

(R.) BRINGEWOOD PIPPIN. Lindley. Py. Malus.

A most excellent dessert apple, raised by Mr Knight; small, globular, flattened; color bright golden; russetty stripes next the sun; breaking, rather dry; juice saccharine, perfumed, aromatic. October to March.

(R.) DELAWARE. Py. Mal. Brent.

A very desirable dessert fruit, supposed to be from America; beautiful; middle sized; flattened; color rich golden, blotched with deep red; flesh firm, rich, high flavored; productive. October to January.

(R.) (L. K.) DOWNTON GOLDEN PIPPIN. Pom. Mag. 113. Lind.

KNIGHT'S PIPPIN. ELTON PIPPIN.

The trees bear early and abundantly. The fruit is of

medium size, cylindrical; the stalk short; skin yellow; flesh yellowish, crisp, with a brisk, rich, subacid juice. October to December. — Raised by Mr Knight. A dessert apple and excellent for cider. Specific gravity of its juice 1.080. We are disappointed in this fruit.

DUCHESS OF OLDENBURGH. Py. Mal.

A very beautiful Russian apple, valuable for the dessert or sauce; middle sized; globular; color golden, streaked with bright red; flavor pleasant, rather acid. September and October. A good bearer.

EMPEROR ALEXANDER. Hort. Trans. Lindley.

ALEXANDER, APOSTA.

The trees of this Russian apple bear abundantly. A specimen was sent from Riga in 1817 measuring $5\frac{1}{2}$ inches in diameter, 4 inches deep, and 16 inches in circumference, and weighing 19 ounces. Fruit very large, cordate, narrow at the crown; the eye in a broad deep cavity; stalk short, sunk to the level of the base; greenish yellow, slightly streaked with red in the shade, but beautifully marbled and streaked with bright red and orange next the sun; flesh yellowish white, crisp and very tender, juicy, rich, sugary, of aromatic flavor. Ripe in October and will keep till Christmas. A valuable and excellent dessert fruit.

(R.) FRANKLIN GOLDEN PIPPIN. Py. Mal.

A medium sized fruit of American origin; oblong, a little flattened; fine yellow; flavor brisk with more acid than the other Golden Pippin. A good bearer.

(P.) GALO BAYEUX. N. Dah. Pl. ccciv.

A beautiful apple cultivated at Vire, in the department of Calvados, not known in the environs of Paris. The tree is very productive. The fruit is large, generally flattened; the stalk short and thick; the skin rough, washed almost throughout with red on a yellow ground; the flesh slightly yellow, savory, agreeably perfumed; the juice sweet; pleasant as the Fennouillets, but with a peculiar and indescribable flavor. One of the most beautiful and best of dessert apples and worthy, as we are assured, of a distinguished place. It ripens 15th September.

GRANGE. Py. Mal.

An excellent dessert or cider fruit, raised by Mr Knight; middle sized; globular, flattened; flesh close, of pleasant

flavor. From October to January. Specific gravity of the juice 1.079.

GROSSE PIGEONET. N. Duh. Pl. cxchit.

This fruit is the largest and most beautiful of all the Pigeonets; its form, oblong, contracted towards its summit; its skin fine, of a yellowish color next the sun, the whole covered with a blue bloom; its flesh white, breaking and very fine; juice abundant, of a very agreeable acid. October and November.

(R.) KING OF PIPPINS. Py. Mal. Brent. Pl. xxxviii.

A first rate fruit, which no garden should be without; middle sized; oblong; color clear golden yellow, fine red next the sun; rich and juicy. Autumn. Productive.

(R.) KIRKE'S GOLDEN REINETTE. Py. Mal.

"Is an improved variety of the old Golden Reinette.

The fruit is in general more beautiful, the flavor equal. The tree bears as well, and is more healthy in its growth."

(C.) NOBLE PIPPIN. Dr Willich.

PEPIN NOBLE.

The trees do not grow tall but bear abundantly. An exquisite dessert fruit; oblong, diminishing to the crown, smooth, bright yellow, a few streaks of red next the sun. It ripens early, and keeps to the end of April.

(R.) PADLEY'S PIPPIN. Pom. Mag. t. 151. Lind.

PADLEY'S ROYAL GEORGE, of Ronald?

A very excellent dessert fruit; rather small; flattened; skin dull yellow or orange and russeted; flesh breaking, saccharine, pleasant, aromatic. Nov. and Dec.

(P.) PIGEONET. Bon. Jard.

CŒUR DE PIGEON. Ib. MUSEAU DE LIEVRE. Ib.

Medium sized, oblong, of a red color, striped with deep red next the sun; the flesh is fine, pleasant and agreeable. October till December.

PINE APPLE RUSSET. Lindley.

This fruit is described by Lindley as one of the best of all their dessert apples; juice more abundant, saccharine, spicy, aromatic, perfumed, with a perfect proportion of acid, and flavor of the pine apple. It is medium sized, roundish ovate, angular; color yellowish or yellow russet; flesh crisp, tender; one of the finest of the season. September and October.

(P.) POMME PRINCESSE. N. Duh. Pl. viii.

The fruit is of medium size, flattened; of a beautiful yellow in the shade, striped with red next the sun; the flesh yellowish white, fine and excellent; juice not abundant, but agreeable and sweet. This excellent apple is one of the best species of Reinettes. October.

(C.) PRINCE'S TABLE APPLE. Dr Willich.

LOSCHKEG.

A delicious autumnal fruit, vying with the pear rennet; it is of the Calville family; moderately large; somewhat oblong; whitish, and covered on the south side with red streaks. The tree does not rise to a considerable height.

(R.) RED INGESTRIE. Py. Mal.

A first rate dessert fruit, of medium size; globular, flattened; color bright golden yellow, but next the sun bright scarlet; flesh crisp, very juicy, high flavored. Raised by Mr Knight. September and November.

(P.) REINETTE DE BRETAGNE. Bon Jard. p. 245.

The fruit is beautiful, of a deep lively red color, dotted with yellow; the flesh firm, sweet, slightly acid, and excellent. This is a late autumn or November fruit.

(P.) REINETTE GRISE DE GRANVILLE. Nouv.

Cours Comp. d'Agri. vol. xii. p. 215.

Differs little from some of the other Reinettes, but appears to be more hardy. It has resisted the severity of those seasons which destroy the fruit of the other Reinettes. Calvel.

(R.) SCARLET PERFUME. Py. Mal.

COLE APPLE. Ib. and Pom. Mag.

A new and very desirable dessert fruit, and good for cooking; moderately large, flattened, nearly globular, flatsided; mostly covered with rich deep red; juicy, rich, flavor spicy. September and October.

(R.) WYKEN PIPPIN. Lindley, Loudon.

A dessert fruit below medium size, flattened, yellowish green, but pale dull brown next the sun; flesh firm, breaking, sugary, with a little musky perfume. The cottagers' apple around Wyken. October to December.

CLASS II. — SECTION III.

WINTER FRUIT.

BARCELONA PEARMAIN. Pom. Mag. t. 85. Lind.

SPECKLED GOLDEN REINETTE, According to the Pom. Mag.

REINETTE ROUGE, According to Lind.

A dessert fruit of medium size, oval, rather long; brownish yellow in the shade, deep red next the sun; flesh firm, with a rich, aromatic, but slight and agreeable acid; November till February. A good bearer.

(R.) BEACHEMWELL SEEDLING. Pom. Mag. Lin.

An excellent dessert apple raised by John Motteaux, Esq. Medium sized, roundish, depressed; pale yellow, but red next the sun; flesh tender, juicy, pleasant. November to April. The tree bears well.

BLLENHEIM ORANGE. Py. Mal. Lindley.

BLLENHEIM PIPPIN, WOODSTOCK PIPPIN. Ib.

One of the largest varieties of dessert apples; globular; broadest at the base; depressed; yellow in the shade, dull red with deep stripes next the sun; breaking, sweet, juicy, extremely highly flavored. Lately originated. November to March.

(C.) (P.) BORSDORFER. Dr Willich.

RED BORSDORFER, Ib. BORSDORF of Lindley.

A delicious German apple of large size, beautiful as the Canadian, and in size and form like the Reinette Triomphante, which it almost excels; globular formed, slightly narrowed at the crown; yellow in the shade, but for the most part a fine glossy red. Its flesh uncommonly white, tender, juicy, sweet, partaking of the odor of roses. A bright red vein encompassing the core. The tree comes early into bearing, and bears abundantly. It ripens in December.

BRABANT BELLE FLEUR. Py. Mal.

Or *Iron Apple*, received from Hamburg. Very large, and handsome, of great solidity; rather conical; slightly ribbed, yellow, colored with red stripes. A capital sauce apple, juicy, and of very pleasant flavor. December to April.

(P.) CANADIAN REINETTE. Pom. Mag. Bon Jard.

GROSSE REINETTE D'ANGLETERRE of Duh.

REINETTE DE CANADA Bon Jard.

REINETTE GROSSE DE CANADA. Hort. Soc. Cat.

REINETTE DE CANADA A COTES. Ib.

REINETTE DE CAEN. According to Pom. Mag. PORTUGAL APPLE Ib.

MELA JANUERA. Ib. REINETTE DE CANADA BLANCHE.

A very large and beautiful fruit; globular, flattened; with projecting ribs; yellow in the shade, slightly red next the sun; flesh firm, juicy, with but little acidity and very good. It has cavities at the centre, and keeps till March. The tree is very productive.

(R.) CHRISTIE'S PIPPIN. Py. Mal.

A very fine dessert apple, raised by Mr Christie; in form and shape like a Nonpareil; lemon colored with faint red stripes; flesh soft, agreeably sweet, enough of acid. November till February. The tree bears abundantly.

(K. L.) CORNISH JULY FLOWER. Py. Mal. Pl. XIX.

JULY FLOWER. Hort. Trans.

Very old, above the middle size, oval, with irregular ribs; of an olive green color, streaked with dull red. The flesh of a rich aromatic flavor and fragrant perfume. Not very prolific. It keeps through the winter.

(R.) COURT OF WICK OR RIVAL GOLDEN PIPPIN.

Py. Mal. Brent. Pl. XII.

"A dessert apple, which vies with the Golden Pippin in richness of flavor, and much excels it in other respects; it is rather large, of a golden hue with red stripes, very handsome. This is esteemed the finest Christmas apple we have; keeps well till February or March. The tree never cankers, and never fails bearing.

D'ASTEMS. Py. Mal. Brent. Pl. XXXI.

STRIFLING D'HIVER.

A noble kitchen fruit, large, globular; a little flattened, green, with some dull red streaks, chiefly on the top of the fruit. It is a first rate sort, firm, with a rich flavor, and dresses well; and will keep till March or April."

DUTCH MIGNONNE. Pom. Mag. Py. Mal.

REINETTE DOREE, of Mayer.

CHRIST'S GOLDEN REINETTE of the Taschenbach, according to the Pom. Mag.

An excellent dessert and sauce apple, over medium size, a little flattened and diminished at its crown; greenish yellow in the shade, next the sun striped and marbled with

deep red. The flesh is firm, crisp, juicy, sub-acid, aromatic. November to April. Tree an abundant bearer.

(C.) **EASTER OR PASQUE APPLE.** Dr Willich.

The Easter or Pasque Apple, is one of the principal and finest of the Calvilles: it is large, with high projecting ribs, and of a bees-wax color; has a white, tender, juicy pulp; and emits a very grateful odor, similar to that of roses. The tree bears abundance of fruit.

(R.) **FEARN'S PIPPIN.** Py. Mal. Brent. Pl. XII.

Generally considered a first rate apple; globular; flattened; mostly covered with deep red; a close texture and rich flavor. December to February. The tree bears well.

(C.) (P.) **FENNOUILLET GRIS.** Bon Jard. Dr Willich.

CARAWAY RUSSET. Hort. Soc. Cat. SPICE APPLE. Ib.

BROWN APPLE OF BURN'T ISLAND. Ib.

ANIS. Bon. Jard. WINTER ANIS RENNET. Dr Willich.

The tree is very productive; the fruit is under medium size; globular, depressed; the skin of a gray fawn shade, covered with thin russet, and a slight brown next the sun; the flesh is tender, and has the peculiar aroma and flavor of annise. December till February.

(P.) **FENNOUILLET JAUNE.** Bon Jard. Lindley.

EMBROIDERED PIPPIN. Lindley.

DRAP D'OR. Bon. Jard. Duh. POMME DE CARACTERE. Ib.

The tree is very productive. The fruit of medium size, globular, inclining to oblong; its skin is a beautiful yellow, marked with fine russet lines resembling letters; hence its name *Pomme Caractere*. Its flesh is firm, delicate, saccharine, and excellent, with a flavor of the Fennouillet or Annise. December to February.

FENNOUILLET ROUGE. Nouv. Cours Compl.

A very excellent fruit, of medium size; globular, flattened; deep gray, but streaked with brown red next the sun; flesh firm, sugary, high flavored, musky. March. This fruit requires a light, warm soil, and cannot be too much multiplied.

(K. L.) **GOLDEN HARVEY.** Py. Mal.

BRANDY APPLE.

A small dessert apple; light yellow, flushed with red and russeted. Flesh remarkably compact, very rich in flavor. It will keep till April or May. It is called Brandy apple from the specific strength and gravity of its juice,

which is 1.085. The tree grows feeble ; it does not bear well at first, but afterwards seldom fails.

(R.) GREEN NONPAREIL. Py. Mal. Brent. Pl. xxxiv.

PETWORTH NONPAREIL.

Raised at the Earl of Egremont's ; larger than the old Nonpareil, but of nearly the same shape ; the color green. A valuable apple for the table ; crisp, juicy, and high flavored ; February or March. It is a good bearer.

HUBBARD'S PEARMAIN. Lindley. Pom. Mag.

GOLDEN VINING, of Pom. Mag.

According to Lindley the merits of this fruit are unrivalled, and its superior as a dessert fruit, from November to April, does not exist in that country. The fruit is small, ovate or globular, yellow, orange or pale red next the sun ; flesh firm, rather dry, juice sweet, rich, of a most highly perfumed, aromatic flavor. An abundant bearer.

(P.) JERUSALEM. Bon. Jard. p. 344.

POMME PIGEON. Ib.

The tree is of medium vigor and very productive. The fruit is small, conical ; its color that of the changeable rose ; flesh fine, delicate, granulous and very good.

(C.) LARGE BEEN APPLE. Dr Willich.

GROSSER BONÉFFEL.

A very valuable fruit for economical uses, and likewise for the table. It is of the larger kind ; bulky towards the stalk and tapering towards the crown, of a yellowish white cast, with red flame colored streaks on the side next the sun. Its pulp is white, tender though firm, and of an agreeable taste ; the apple being eatable in December, is easily preserved till the next crop. When dried in slices, it affords delicious food ; and also a fine dish when preserved in a fresh state. The tree is of pyramidal form, and very productive.

(C.) LONG CARTHUSIAN APPLE. Dr Willich.

Is a capital domestic fruit, frequently of a large size, with irregular angles, and acquires a fine yellow shade. It may be preserved till the succeeding summer, and maintains the first rank for boiling or baking, in the various dishes of pastry, where it becomes sweetly mellow, and has a delicate taste. When other apples, (the Borsdorf excepted) lose their flavor by culinary preparations, the Long Carthusian is greatly improved by the action of heat.

(R.) MARGIL. Lindley. Hooker's Pom. Lond.

A very excellent dessert fruit ; small, ovate, angular ; bright orange, streaked and mottled with rich red and brown ; slightly russetted ; flesh yellow, firm, breaking, juicy, sweet, highly aromatic. November to March. A very excellent bearer.

(R.) MARTIN NONPAREIL. Hooker. Lindley.

A new and valuable dessert fruit, small, ovate, depressed ; dull green, but tawny orange or red next the sun ; thinly russetted ; not handsome ; flesh compact with an excellent flavor, sweet, with a fine acid. They have been kept a year ; the tree is a good bearer.

(R.) MELA CARLA. Hort. Trans. Lind.

MALCARLE. Hort. Trans. CHARLES APPLE. Ib.

POMME FINALE. Ib.

One of the most celebrated and famous of fruits. Rather large in size ; of a form inclining to globular, but slightly ovate ; the eye and the stalk, which is about an inch long, and slender, are each inserted in small deep cavities. The beautiful waxen skin is without spot, except being a little marbled with a very faint green near the eye ; of a pale yellow in the shade, which unites rather abruptly with the splendid crimson with which it is covered next the sun. The flesh is white, tender, delicate, sweet, with ~~the~~ fragrant perfume of roses. It ripens in September and will keep till spring. This apple is a native of Finale in Lagaira ; it is cultivated extensively in the territories of Genoa as an article of export and commerce to Nice, Barcelona, Marseilles, and Cadiz. A far famed fruit. In the climate of Italy this is supposed to be the best apple in the world. But in England their writers state, it proves in open culture but an ordinary fruit, their climate being unsuitable ; they indulge the expectation, however, that it may prove fine on their walls. It is highly deserving trial with us, in our more favored climate.

(C.) MELA DE ROSMARINO. Dr Willich.

WHITE ITALIAN ROSEMARY APPLE. Ib.

A very beautiful species of Calville, having no ribs, but a most glossy skin which resembles the finest virgin wax ; and on the south somewhat red ; of an oblong figure and the size of a goose egg. Its flesh is white as snow ; uncommonly tender, and yielding a saccharine juice of a

slightly aromatic flavor. Its large pericarpium contains twenty kernels in five cells. November till February.

NORFOLK BEAUFIN. Py. Malus. Lind.

A beautiful cooking apple; a fruit of great merit for drying, furnishing a luxury at table during winter; rather large, flattened; nearly the whole surface covered with livid red. November till June. "These apples are dried by the bakers of Norwich, annually, and sent in boxes to all parts of the kingdom, where they are universally admired."

(R.) ORANGE PIPPIN. Py. Mal.

MARIGOLD PIPPIN. Hort. Soc. Cat.

ISLE OF WIGHT ORANGE. Ib. ISLE OF WIGHT PIPPIN. Ib.

A beautiful apple, in shape, size, and color, much like a middle sized orange; of pleasant flavor, and juicy, equally desirable for the dessert or for sauce; December and January. The tree bears well. Specific gravity of the juice 1.074. According to Mr Knight, it is an excellent cider apple. Supposed to have been brought from Normandy.

(C.) PEAR RENNET. Dr Willich.

REINETTE POIRE, of the catalogues.

Both an autumnal and winter fruit, presents a capital yellow apple, of a tender yellowish pulp, the juice of which has the acidulous flavor of Rhenish wine; it is sufficiently mellow in the beginning of November, and may be preserved through the greater part of winter. The tree is of slender growth.

POMME DE LESTRE. Bon. Jard. p. 344.

This apple was found in the department of Vienne in 1813, and has been preserved during three years. It is highly esteemed.

(C.) PUNCTURED RENNET. Dr Willich.

REINETTE PIQUEE.

"A smooth reddish apple, approaching to a chesnut color; in shape and size resembling the largest Borsdorfer, covered with white punctures, each of which is surrounded with a green edge; its pulp is firm, mellow, and of an excellent vinous flavor; being eatable in February and March. The tree becomes of a tolerably large size."

(C.) (P.) REINETTE DORE'E. Dr Willich. Nouv.

Cours Complet d'Agr. vol. xii. p. 213.

REINETTE JAUNE TARDIVE. Ib. Dr Willich.

This apple is equal in goodness to the Reinette Franche,

but is nearly gone when that variety begins to be fit for use; it is middle sized, flattened, deep yellow in the shade, reddish next the sun; flesh juicy, saccharine, vinous, high flavored, a little acid. December to March.

(P.) **REINETTE FRANCHE.** Nouv. Cours Compl. v. xii. p. 215.

Fruit large, round, irregularly formed, and very much pointed with brown; sometimes slightly red next the sun. The flesh is firm, yellowish white, saccharine, agreeable. It is, notwithstanding the excellence of the Reinette Grise and the Reinette du Canada, the best of all; but it varies much in goodness, in size, and duration, according to the soils, expositions, seasons, &c.

REINETTE GRISE DE CHAMPAGNE. Nouv. Cours Complet d'Agriculture, vol. xii. p. 215.

Of medium size, flattened; of a gray fawn color, blotched with red next the sun; flesh breaking, little perfumed, mild, sugary, very agreeable. This apple is excellent, and may be preserved a long time. It is preferred to the other Reinettes by those who dislike their odor and their acidity. Calvel.

(P.) **REINETTE GRISE.** Nouv. Cours Comp. v. xii. p. 214.

Of medium size, flattened; skin thick, rough, greenish yellow in the shade, reddish yellow next the sun; the flesh is firm, yellowish white, sugary, high flavored, with a very fine and very agreeable acid. This is regarded as one of the best of apples; but notwithstanding this, the Reinette Franche disputes the claim. It keeps long after winter.

LA REINETTE PRINCESSE NOBLE. Nouv. Cours Complet d'Agriculture, vol. xii. p. 215. Bon. Jard.

A fruit of medium size, oblong, of a yellowish green color, pointed with brown; the flesh is a little acid and very agreeable. It keeps through part of the winter. The tree is vigorous and very productive.

(R.) **SCARLET NONPAREIL.** Pom. Mag. t. 87. Lindley. *Pyrus Malus*, Pl. xxxiv.

A dessert apple, admired for its beauty and excellence, middle sized, roundish, not angular; yellowish green in the shade, deep red next the sun, streaked. Flesh firm, yellowish white, juicy, rich, and excellent. Extensively cultivated in England. November to March.

(K. L.) (R.) SWEENEY NONPAREIL. Hort. Trans.
Lindley.

Rather large, and in form of a Nonpareil; color green, with patches of russet all over; sometimes a brilliant color next the sun. Flesh firm, crisp, with abundance of juice in which a powerful acid is combined with much sugar. A new dessert apple from November to March. The tree is an abundant bearer.

(R.) SYKEHOUSE APPLE. Hooker's Pom.

The tree grows freely, and when well established bears fruit abundantly. "The fruit is small, roundish, depressed; the stalk short; color green with a good deal of russet, but in a good season it is a handsome apple, with some red next the sun. The flesh is rather firm, but of pleasant flavor and extraordinary richness. It ripens in January and is justly regarded as one of the best dessert apples at present known."

(C.) REINETTE TRIOMPHANTE.

VICTORIOUS REINETTE. Dr Willich.

"An uncommonly fine, large, and well formed apple, which on being deposited on the floor, acquires a deep yellow tint, marked with starry points, and frequently brown rough spots, or large warts; its eye represents a regular star; its flesh beneath the tender skin, is yellow, firm, though delicate; yielding abundance of juice that possesses a pleasant aromatic flavor; it ripens about Christmas and may be kept till March. The tree grows luxuriantly, and becomes of considerable size."

LA VIOLETTE. Nouv. Cours Complet Agri.

POMME DE QUATRE GOUTS. Ib.

Fruit of medium size, oblong; color deep red next the sun, yellow, striped with red in the shade; the flesh fine, delicate, saccharine, having a little of the perfume of the violet; reddish beneath the skin, greenish towards the centre. This variety is one of the best of apples, and keeps till May.

(R.) Also to the above list, all NONPAREILS and all GOLDEN PIPPINS not here described, are recommended by Mr Ronald for walls.

CLASS II. — SECTION IV.

FOREIGN CIDER APPLES DESERVING TRIAL IN U. S.

THESE WOULD BE LIKELY TO ANSWER WELL IN CANADA.

FOXLEY. Lindley.

Raised by Mr Knight from the Siberian Crab and Golden Pippin. A very small apple, growing in clusters, of a bright gold color. Specific gravity of its juice 1.080.

HAGLOE CRAB.

The most famous cider in the world was formerly made from this fruit in England. An old fruit; small, ill shaped; yellow in the shade, russetty red next the sun. Specific gravity of the juice 1.081. This fruit has been many years in the United States — quite long enough for trial.

SIBERIAN BITTER SWEET. Lindley.

Raised by Mr Knight from the Siberian Crab and Golden Harvey; and was sent by Mr Knight to the Hon. John Lowell. It is small, not much larger than the Siberian Crab, of a yellow color, with a blush next the sun. It is supposed to contain a larger proportion of saccharine matter than any other apple known. It does not abound in juice, and it is supposed would be a most valuable variety to mix with the more austere sorts. The trees are most abundant bearers.

SIBERIAN HARVEY. Lindley.

A small globular fruit, raised by Mr Knight from the Siberian Crab and Golden Harvey; of a bright gold color, stained with deep red next the sun; the fruit grows in clusters on slender branches; the juice exceeding sweet; ripe the middle of October. Specific gravity of its juice 1.091.

See DOWNTON GOLDEN PIPPIN, GRANGE, and ORANGE PIPPIN, which are all cider fruits.

CLASS III.SELECT LIST OF FOREIGN VARIETIES OF APPLES
DESERVING TRIAL IN NORTHERN CLIMATES.

The following select list of Northern fruits are chiefly of British origin. They are described by their writers, Lind-

ley and Ronald, as of first rate excellence ; the latter, especially, from his great collection of trees in bearing. Yet as none of them are by him included in that list of kinds, which he has recommended as being highly improved on walls, or as requiring a warmer climate. I have therefore concluded to leave them all in high northern latitudes. Other reasons for this will be found in the "Introduction" to this work, and in the article which follows, on "CLIMATE." I have assigned them to the influence of fine summer skies — to Nova Scotia and the Canadas, and the British Possessions in America — also to the northwestern section of our own country, on the side of the Pacific — to Oregon ; and our neighbors the Russians, lying contiguous. For all of them, we might include, also, many other kinds, of the first and second Classes, which may have originated in the higher latitudes.

ABBREVIATIONS.

- D. Denotes those kinds which are excellent for the Dessert.
 C. Denotes those kinds which are valuable for Cooking.
 P. Denotes those kinds which are very productive.

CLASS III. — SECTION I.

SUMMER FRUIT.

ASTRACAN. Pom. Mag. Lind. Dr Willich.

WHITE ASTRACAN. Pom. Mag. and Lind.

GLACE DE ZELANDE. Ib. TRANSPARENT DE MOSCOVIE. Ib.

RUSSIAN ICE APPLE. Ib. POMME DE GLACE. Ib.

This fruit is said to grow wild about Astracan. It is of medium size, globular, the sides angular ; the skin is smooth, and covered with pale bloom ; the flesh semitransparent, of the whiteness of snow. Dr Willich, on the authority of M. Christ, has described it as beautiful, yellowish white, with fine red flaming streaks ; with a saccharine juice, so copious, that it constitutes seven ninths of the weight of the fruit — which is most superior, *in a suitable situation and climate, not below 49° of latitude.* [See Art. on Climate in the first pages of this work.] The Pom. Mag. and Lindley inform us that this fruit is very fine in the climate of England ; but at Paris, according to the Bon. Jard. the fruit is but at mediocrity ; and in our climate, good judges have pronounced it good for nothing.

BOROVITSKY. (Russian.) Pom. Mag. D. Aug.
 BROWN'S SUMMER BEAUTY. Py. Mal. D. P. Sept.
 CARLISLE CODLIN. Py. Mal. C. P. Aug. to Jan.
 EARLY CROFTON. (Irish.) Py. Mal. D. C. Aug.
 EARLY JULIEN. (Scotch.) Lind. D. C. P. Aug.
 RIVELSTONE PIPPIN. (Scotch.) Lind. D. P. Aug.
 SACK AND SUGAR. Py. Mal. D. P. Aug.
 SUGAR LOAF PIPPIN. *Dolgoi Squoznoi, or Long Transparent.* (Russian.) Pom. Mag. D. Aug.
 WORMSLEY PIPPIN. *Knight's Codlin.* C. P. Sept.

CLASS III.—SECTION II.

AUTUMN FRUIT.

ALFRISTON. Lind. C. Oct. to Jan.
 BEAUTY OF KENT. Py. Mal. C. Nov. to Jan.
 DEVONSHIRE QUEEN. Py. Mal. D. C. Oct.
 DOWELL'S PIPPIN. Hort. Trans. D. Oct to Jan.
 EDGAR. Py. Mal. D. C. P. Nov. to Dec.
 FLOWER OF KENT. Py. Mal. C. Baking. Nov.
 FRENCH PIPPIN. Py. Mal. C. P. Nov. to Jan.
 GOLDEN BURR. Py. Mal. D. P. Nov. to Dec.
 HOLLANDBURY. *Kirke's Scarlet Admirable.* Py. Mal. C. Nov.
 KENTISH BROADCASTING. C. P. Nov. to Dec.
 KENTISH FILLBASKET. Py. Mal. P.
 KERRY PIPPIN. Pom. Mag. D. P. Sept.
 LEWIS' INCOMPARABLE. Py. Mal. C. P.
 LONDON PIPPIN. Py. Mal. C. P. Dec.
 LUCCOMBE'S SEEDLING. Py. Mal. C. Nov. to Jan.
 POTTER'S LARGE SEEDLING. Py. Mal. C. P. Nov. to Jan.
 RAWLIN'S FINE RED STREAK. Py. Mal. C. P. Nov.
 RYMER. Py. Mal. C. P. Oct. to Jan.
 SALOPIAN PIPPIN. Py. Mal. C. P. Oct.
 SCARLET CROFTON. (Irish.) Lind. D. Oct.
 SOPS OF WINE. Py. Mal. D. Oct.
 STRIPED MONSTROUS REINETTE. Py. Mal. C. Oct.

CLASS III. — SECTION III.

WINTER FRUIT.

AROMATIC RUSSET. Py. Mal. D. P. Nov. to Feb.
 BEDFORDSHIRE FOUNDLING. Py. Mal. Baking.
 C. Dec.

BURRELL'S RED. Py. Mal. P. Nov. to Dec.
 CLAYGATE PEARMAN. Hort. Trans. D. March.
 COCKLE PIPPIN. Py. Mal. D. C. P. May.
 CORNISH AROMATIC. Py. Mal. C. P. Nov. to Jan.
 COWARNE'S QUEENIEG. Py. Mal. C. P. Nov.
 DEVONSHIRE GOLDEN BALL. Py. Mal. C. P. Feb.
 DUKE OF WELLINGTON. *Dumelow*. Py. Mal. C.

Nov.

HAMBLEDON DEUX ANS. Py. Mal. Winter.
 KIRKE'S LORD NELSON. Py. Mal. D. C. Jan.
 LEMON PIPPIN. Py. Mal. C. P. March.
 MARMALADE PIPPIN. (Welch.) Py. Mal. (March.)
 D. P. Feb.

NORFOLK STORING. Py. Mal. D. C. P. Dec.
 STRIPED HOLLAND PIPPIN. Py. Mal. D. C. P.
 March.

WALTHAM ABBEY SEEDLING. Hort. Trans. C. P.
 Jan.

YORKSHIRE GREENING. Py. Mal. C. P. April.

CULTIVATION.

The seeds or Pomace of the apple should be sown in autumn in a rich soil. — When the young plants appear in spring, they should be carefully thinned to the distance of two inches asunder, and kept free from weeds by carefully hoeing during the remainder of the season, or till of sufficient size to be removed.

At one or two years of age they are taken up, their tap roots shortened that they may throw out lateral roots, they

are transferred to the nursery, set in rows about four feet asunder—and at one foot distance from each other in the row, in a rich and loamy soil. In the summer following they are inoculated, or they are engrafted or inoculated the year following.

SIZE AND AGE FOR TRANSPLANTING TO THE ORCHARD.

An apple tree, when finally transplanted to the orchard, ought to be at least 6 or 7 feet high, with branches in proportion, and full two years from the bud or graft, and thrifty; apple trees under this size belong properly only to the nursery.

DISTANCE.

The distance asunder to which apple trees should be finally set when transplanted to the orchard, depends upon the nature of the soil, and the cultivation to be subsequently given. If the soil is by nature extremely fertile, 40 feet distance may be allowed, and even 45 and 50 feet in some very extraordinary situations: for before the trees become old they will completely shade the ground. If however the soil is not very extraordinary by nature or so rendered by art, this distance would be too great; for the trees would become old and their growth would be finished, before the ground could be covered by their shadow;—30 feet only, may therefore be allowed in land usually denominated of good quality, and but 20 to 25 feet in land of ordinary quality.

The quincunx mode is recommended for close arrangement, and short lived trees may be set in the intervals.

The size to which an apple tree may attain, and the ground which should be allotted to it, depend also, in some measure, on the particular variety of apple; some sorts being well known to attain to a much greater size than that of others.

The period of growth, or the duration of the apple tree is comparatively limited; this is sufficiently evident from the perishable nature of its timber. Those species of trees only, will continue living and growing for numerous centuries, whose timber may be preserved incorruptible during the lapse of a long succession of ages.

SOIL AND SITUATION.

A rich soil, rather moist than dry, is that adapted to the apple tree, but what is usually termed a deep pan soil is to be preferred.

On such a soil, whether on the plains, or in the valley, or on the sides and summits of our great hills, which almost always consist of good land, and even in situations the most exposed, the apple tree will flourish.

One of the most productive apple orchards in this immediate vicinity, is situated on the north and northwest sides of a hill, the most exposed to cold winds. The soil of great hills is generally of far superior quality to that of the plains, and it is a very mistaken opinion which seems adopted by some, that the soil of all hills must of necessity be dry and deficient in moisture. It is the plains and the knolls that are but too generally thus deficient, not the great hills, which almost always abound in springs.

Land half covered with rocks and incapable of being cultivated with the plough, is in some respects admirably suited to the apple tree. For in such situations they are not liable to suffer from drought; they receive nearly a double portion of moisture from the rains that fall, and a greater degree of heat by the reflected rays of the sun.

They may even flourish on sandy plains, if where the tree is to be placed, an excavation is formed 6 or 8 feet in diameter, and 3 or 4 feet in depth, and if half filled either with useless small stones intermixed with rich loam, mud from the low grounds, clay, or gravelly clay, or mixtures of any of these substances, with a portion of manure, and the remainder of the excavation filled to the surface with rich loam.

MANAGEMENT OF THE LAND.

If the ground intended for the orchard cannot conveniently be kept wholly in a state of cultivation during the first years, a portion at least ought to be.

A strip of land to each row of 8 or 10 feet in width, well manured, may be kept cultivated, and the vegetables which may here be raised will amply repay the expense and labor bestowed during the 4 or 5 first years. After this, if the trees have grown well, as they probably must have done,

cultivation at a distance in the intervals becomes even more important than within the limited distance of a very few feet from the trunk of the tree.

For on examination it will be found that the small fibres or sponglets, by which alone the tree derives all the nourishment it receives from the earth, are now remote from the trunk of the tree; they are now to be found seeking pasture beyond the limits of its shade, and it becomes necessary that the whole ground should be kept in a high state of cultivation for the 4 or 5 following years; after this period, it may occasionally be laid to grass, which however should be broken up at frequent intervals, the land being always kept in good heart.

PRUNING.

I have given directions for pruning the trees while young under the general directions in the former part of this work, at page 43. Those directions are particularly applicable to the apple tree. I would only add, that when these directions have been followed, when large and profitable crops are desired, our cultivators generally avoid robbing their trees unnecessarily, of a particle of bearing wood.

Those limbs which interfere with other limbs by galling, the suckers and dead wood are alone removed; for they consider that the warmth of the atmosphere is of itself sufficient in our climate, to ripen the fruit, without attempting to admit the sun to every part of the tree.

These directions are to be more especially observed in regard to old trees in their declining years—their trunks being too old for the reproduction and sustenance of a crop of new and fruitful wood—nothing should be taken away but the dead branches and suckers. We have seen old trees, whose branches were annually loaded with fruit, despoiled at once by the hand of man of half their bearing wood, under the mistaken idea that the destruction of the one half of the tree would confer a benefit on the remainder, and render them still more productive. We noticed however that the effect thus produced was directly the reverse, as their total destruction usually followed as a consequence, not long after.

INSECTS.

The apple tree has four destructive enemies. The caterpillar, the borer, the canker worm and the curculio.

The *Caterpillar* usually makes its first appearance with the opening of the leaf of the apple tree; they are readily and easily destroyed if taken in season. They are brought down either by the hand, or by the excellent brush invented by the late Hon. Timothy Pickering, which must be attached to a pole. They should be taken early in the morning before they leave their nests. When brought down they must be destroyed. The trees should be examined a second time not long after.

The Borer. The modes of preserving apple trees from the depredations of the borer may be found in the former part of this work.

Of the Canker Worm. In the immediate neighborhood where I reside the canker worm is unknown—I must therefore avail of the experience of others.

The canker worm, after it has finished its work of destruction in spring, descends to the earth, which it enters to the depth of from one to five inches. After the first frosts of October, or from the 15th or 20th, those nearest the surface usually begin to rise from their earthy bed, transformed to grubs or millers. They usually rise in the night and invariably direct their course to the tree, which they ascend and deposit their eggs on the branches, which are hatched in April or May. They frequently rise during moderate weather in winter, when the ground is not frozen, and in March, and till towards the end of May. When the ground in spring has been bound by a long continuance of frost, and a thaw suddenly takes place, they sometimes ascend in incredible numbers.

Here, then, at the bottom or trunk of the tree, it is necessary to arrest their progress and prevent the ascent of the grub or miller.

The usual mode, or the mode generally adopted in practice, is tarring. With this design the bark around the circumference of the trunk is scraped smooth, and the crevices where the application is to be made, are filled with clay or mortar; over this a strip of canvas 3 or 4 inches in width is to be bound around the tree, the lower band to consist

of a large tow cord to prevent the running down of the tar, and its consequent pernicious effect on the tree. On this strip, the tar is laid with a brush. The operation must be performed every afternoon a little before sunset, when the weather is moderate, and the surface of the earth not frozen, from the first hard frosts which commence in October, and during the winter, till about the last of May. For the tar, by the heat of the sun, or by dry winds or other causes, sometimes becomes dry on its surface in a very short time, and in such cases it offers no obstruction to the passage of the insect. Dr Thacher in his American Orchardist, has recommended that a small portion of soft grease or train oil should be mixed with the tar to preserve it from drying. It should be observed that the insect on finding its passage obstructed, frequently deposits its eggs in great numbers near the base of the tree in the cracks and fissures of the bark. These may be destroyed by a solution of potash. But the tar does not at all times afford a perfect security, for when vast numbers arise at once from the earth, a bridge over the tar is speedily formed of the carcasses of those which first attempt the ascent, and over these an innumerable host may safely pass, and the labor of tarring, previously bestowed, is lost for that season.

The tarring process is a tedious one, requiring constant attention during a long period; the omission of a single night favorable to the ascent of the grubs, may prove fatal to the trees for that season, and the labor previously bestowed is lost.

Various other modes have therefore been proposed with the design of preventing their ascent: but however ingenious or effectual they may have proved, they have not to my knowledge yet been introduced to general practice.

The strip of list, or girdle to surround the tree, and covered with the mercurial ointment as recommended by Dr Spofford of Bradford, Mass. as an effectual remedy, was tried by Gen. Dearborn in the course of his experiments, and with him has totally failed — it offered no obstruction whatever to the ascent of insects. [See New England Farmer, Vol. viii. Nos. 23 and 48.]

What the particular causes of the failure in this instance were, provided it has in other instances proved effectual, we cannot conjecture; unless we suppose that the insects passed over while the mercurial preparation was yet in a

new and fresh state; and before it had time to imbibe that portion of oxygen from the atmosphere, which Dr Spofford has asserted, renders its poison more active and effectual.

The Hon. John Lowell has stated in Vol. III. No. 4, of the Mass. Agr. Repository, that he caused the ground around 60 apple trees to be dug to the depth of four inches, and to the distance of two or three feet from the roots; it having been ascertained by Professor Peck that the insect seldom descended into the ground at a greater distance than three or four feet from the trunk. The ground being laid smooth, three casks of *effete* or air-slacked lime were spread over the surface thus prepared, to the depth of about an inch. These trees were tarred as well as the others, and although grubs or worms appeared on most that were not limed, not a single grub was to be perceived on the trees limed.

Mr Lowell has spoken of the result of the experiment as of a single trial, and the first of the kind to his knowledge on record, and expresses his hopes that it may induce others to pursue still further the experiment; for while tarring is injurious to the tree, and expensive in its application, the lime, which may consist of sweepings of the lime store, is comparatively cheap; — it requires but a single application in a season, it is not only destructive to animal substance but is useful as a manure.

Professor Peck has recommended that the ground should in October be carefully inverted with a spade to the depth of five inches, and as far as the branches extend, the clods broken, the surface raked smooth, and rolled with a heavy roller; the rolling to be repeated in March. Lime reduced to an impalpable powder, he thinks, might be with advantage applied to the surface thus smoothed, not only as being adapted to close the openings which may appear, but useful also from its caustic qualities.

Dr Robbins of Roxbury, has recommended as an effectual remedy, that a strip of sheet-lead of four and a half inches in width, be formed into a tube or gutter by bending over a wooden cylinder; this is again bent round the tree by passing a rope through it. After being adjusted to a level it is secured by nailing its inner edge to the tree. This being soldered at the ends, is filled in autumn with winter strained oil, spirits turpentine, or other liquids, and

above this is placed a strip of oiled sheathing paper, cut in proper form as a screen from the falling rain.

The plan invented by Mr Abel Houghton, of Lynn, and said to have proved effectual, differs from the above, as the circular gutter is formed of thick pasteboard painted; it is filled with oil, and a pasteboard screen projects from above covered with painted canvas, to shield it from the rain.

On similar principles Mr Briggs of Bristol, R. I., has successfully stopped the ascent of the grub by gutters formed of tin. Four straight gutters are connected by soldering at their corners; these being adjusted to a level are supported on strips of boards nailed to the tree; the inner edge of the gutter is so bent as to project over the outer edge to shield it from the rain. The space between the gutter and tree being filled with swingling tow properly secured, and the gutter being filled half full of water, a quantity of thin whale oil is added, and the security is supposed to be complete.

The Hon. H. A. S. Dearborn has further suggested that gutters formed of earthen Danvers ware, laid on the earth around the tree, might perhaps prove cheaper; and these being filled with a fluid might be equally as effectual.

Lastly, we would recommend for *experiment*, on the supposition that some one of them may prove effectual, the application of the following substances. For a more particular account of them all, see the article *Insects* in the former part of this work.

1. *Chloride of Lime*, to be placed around the roots of the tree in a circular gutter formed of any material and screened from rain.

2. *Cinders* from the blacksmith's forge applied in a similar manner, which have been found by Professor Thouin so effectual in obstructing the march of the *wire-worm*.

3. The application of *coal tar*, instead of *common tar*, to prevent the ascent of the grub. This substance, as has already been stated, possesses either qualities so poisonous or an odor so powerful, that its application is now said to be effectual in preventing the ravages of the worm which is so destructive to the plank of the ships which navigate the ocean in warm latitudes.

4. The *garden compound*, sold at the bookstore of Mr Ives in Salem, and at the seed-store of Mr Barrett in Boston, is understood to possess powerful qualities.

When the canker worms have once gained possession of the tree, it is by no means deemed an easy task to dislodge them. Attempts have been made to destroy or dislodge them by fumigations of oil, sulphur, &c., but the accounts of the efficacy of such attempts are contradictory. They may however be dislodged by pounding the limbs, and shaking the trees and their re-ascent prevented.

Curculio. For an account of the various modes adopted to avert the ravages of this destructive insect, see the article *Insects* in the former part of the work.

GATHERING AND PRESERVING THE FRUIT.

Various theories have been offered for preserving apples in a sound state for winter use or for distant voyages. Some have proposed gathering the fruit before it is ripe and drying it on floors before it is put up; this has been tried; the apples lose their sprightly flavor, and keep no better than by some less troublesome modes. Dr Noah Webster has recommended that they should be put down between layers of sand which has been dried by the heat of summer. This is without doubt an excellent mode, as it excludes the air, and absorbs the moisture, and must be useful when apples are to be shipped to a warm climate.

Chopped straw has also been highly recommended to be placed between the layers of fruit; but I have noticed that the straw, from the perspiration it imbibes, becomes musty, and may probably do more hurt than good. When apples are to be exported, it has been recommended that each be separately wrapped in coarse paper, in the manner oranges and lemons are usually put up. This is without doubt an excellent mode. And Mr Loudon has recommended that apples destined for Europe should be packed between layers of grain.

Great quantities of fine winter fruit are raised in the vicinity of Boston and put up for winter use, for the markets, and for exportation. The following is the mode almost universally adopted by the most experienced. And by this mode apples under very favorable circumstances, are frequently preserved in a sound state, or not one in fifty defective, for a period of seven or eight months. The fruit is suffered to hang on the tree to as late a period as possible in October, or till hard frosts have loosened the stalk, and they are in imminent danger of being blown down

by high winds; such as have already fallen are carefully gathered and inspected, and the best are put up for early winter use. They are carefully gathered from the tree by hand and as carefully laid in baskets. New, tight, well seasoned flour barrels from the bakers, are usually preferred; the baskets being filled are cautiously lowered into the barrels and reversed. The barrels being quite filled are gently shaken, and the head is gently pressed down to its place and secured. It is observed that this pressure never causes them to rot *next the head*, and is necessary, as they are never allowed to rattle in removing. No soft straw or shavings are admitted at the ends; it causes mustiness and decay. They are next carefully placed in wagons and removed on the *bulge*, and laid in courses in a cool airy situation on the north side of buildings near the cellar, protected by a covering on the top, of boards, so placed as to defend them from the sun and rain, while the air is not excluded at the sides. A chill does not injure them, it is no disservice; but when extreme cold weather comes on, and they are in imminent danger of being frozen, whether by night or day, they are carefully rolled into a cool, airy, dry cellar, with openings on the north side, that the cold air may have free access; they are laid in tiers, and the cellar is in due time closed and rendered secure from frost. The barrels are never tumbled or placed on the head. Apples keep best when grown in dry seasons and on dry soils. If fruit is gathered *late*, and according to the above directions, repacking is unnecessary, it is even ruinous, and should on no account be practised till the barrel is opened for use. It has been fully tried.

When apples are to be exported, Mr Cobbett has recommended that "they should if possible be carried on deck; otherwise between decks." — Between decks is the place, and in the most dry, cool and airy part.

CIDER.

Cider, or the fermented juice of the apple, constitutes the principal vinous beverage of the citizens of New England, of the Middle States, and of the older States of the west. Good cider is deemed a pleasant, wholesome liquor during the heat of summer; and Mr Knight has asserted, and also eminent medical men, that strong astringent ciders

have been found to produce nearly the same effect in cases of putrid fever as Port wine.

The unfermented juice of the apple consists of water, and a peculiar acid called the *malic acid*, combined with the saccharine principle. Where a just proportion of the latter is wanting, the liquor will be poor and watery, without body, very difficult to preserve and manage. In the process of fermentation the saccharine principle is in part converted to alcohol. Where the proportion of the saccharine principle is wanting, the deficiency must be supplied, either by the addition of a saccharine substance before fermentation, or by the addition of alcohol after fermentation. For every one must know, that all good wine or cider contains it, elaborated by fermentation, either in the cask, or in the reservoirs at the distillery. The best and the cheapest kind is the *Neutral Spirit*, a highly rectified and tasteless spirit, obtained from New England Rum. Some, however, object to any addition of either sugar or alcohol to supply deficiencies; forgetful that these substances are the very elements of which all wine, cider, and vinous liquors are composed.

The strength of the cider depends on the specific gravity of the juice on expression; this may be easily ascertained by weighing or by the hydrometer.

I have described some of the most approved varieties of apples known. The density of their juices is designated by their weight, which I have stated; which is always in proportion to the same measure and quantity of water, weighing 1000. According to the experiments of Major Adlum of Georgetown, District of Columbia, it appeared that when two pounds of sugar were dissolved in a gallon of rain water, the bulk occupied by 1000 grains of rain water weighed 1087 grains. From this it would appear that the juice produced by the best known apple, contains about two pounds of sugar in a gallon. Mr Marshal has asserted that a gentleman, Mr Bellamy of Herefordshire, Eng. has by skill "produced cider from an apple called Hagloe crab, which for richness, flavor, and price on the spot, exceeds perhaps every other liquor which nature or art has produced. He has been offered sixty guineas for a hoghead of 110 gallons of this liquor." Newark in New Jersey, is reputed one of the most famous places in America for its cider. The cider apple most celebrated there is

the Harrison apple, a native fruit; and cider made from this fruit, when fined and fit for bottling, frequently brings \$10 per barrel, according to Mr Coxé. This and the Hughes' Virginia Crab are the two most celebrated cider apples of America. Old trees growing in dry soils produce, it is said, the best cider. A good cider apple is saccharine and astringent.

To make good cider, the first requisite is suitable fruit; it is equally necessary that the fruit should be not merely mellow, but *thoroughly mature*, rotten apples being excluded; and ripe if possible at the suitable period, or about the first of November, or from the first to the middle, after the excessive heat of the season is past, and while sufficient warmth yet remains to enable the fermentation to progress slowly as it ought.

The fruit should be gathered by hand or shaken from the tree in dry weather, when it is at perfect maturity; and the ground should be covered with coarse cloths or Russia mats beneath, to prevent bruising, and consequent rotteness, before the grinding commences. Unripe fruit should be laid in large masses, protected from dews and rain, to *sweat* and hurry on its maturity, when the suitable time for making approaches. The earlier fruits should be laid in thin layers on stagings to preserve them to the suitable period for making, protected alike from rain and dews, and where they may be benefited by currents of cool, dry air.

Each variety should be kept separate, that those ripening at the same period may be ground together.

In grinding, the most perfect machinery should be used to reduce the whole fruit, skin and seeds to a fine pulp. This should, if possible, be performed in cool weather. The late Joseph Cooper of New Jersey has observed emphatically, that "*the longer a cheese lies after being ground, before pressing, the better for the cider, provided it escapes fermentation until the pressing is completed,*" and he further observes, "that a sour apple after being bruised on one side, becomes rich and sweet after it has changed to a brown color, while it yet retains its acid taste on the opposite side." When the pomace united to the juice is thus suffered for a time to remain, it undergoes a chemical change; the saccharine principle is developed, it will be found rich and sweet; sugar is in this case produced by the prolonged union of the bruised pulp and juice, which could never

have been formed in that quantity had they been sooner separated.

Mr Jona. Rice, of Marlborough, who made the premium cider so much admired at Concord, Mass., appears so sensible of the important effects of mature or *fully ripe* fruit, that, provided this is the case, he is willing even to forego the disadvantage of having a portion of them quite rotten. Let me observe that this rottenness must be the effect, in part, of bruises by improper modes of gathering — or by improper mixtures of ripe and unripe fruit. He always chooses cool weather for the operation of grinding; and instead of suffering the pomace to remain but 24 or 48 hours at most, before pressing, as others have directed, he suffers it to remain from *a week to ten days*, provided the weather will admit, stirring the mass daily till it is put to the press. [See his communication in vol. VII. p. 123, of N. E. Farmer.]

The best cider is made, according to Dr Mease, by the following process. The liquor on coming from the press is strained through hair cloths, or sieves, and put into clean, tight, strong hogsheads; these are filled, and the bung left out, and placed in cool airy cellars, or on the north sides of buildings where the air circulates. In a day, or sometimes less, according to the state of the weather and maturity of the fruit, the pulp begins to rise and flows from the bung for a few hours, or a day or two at farthest; at the intervals of two or three hours the hogshead is replenished, and kept full from a portion of the same liquor kept in reserve for this purpose, as it is deemed necessary that the whole pulp should overflow, that none may return again into the liquor. The moment the pulp has ceased rising, white bubbles are perceived — the liquor is in this critical moment fine or clear, and must be instantly drawn off by a cock or faucet within three inches of the bottom.

On drawing off the cider it must be put into a clean cask and closely watched, the fermentation restrained or prevented; when, therefore, white bubbles as mentioned above, are again perceived at the bung hole, rack it again immediately, after which it will probably not ferment till March, when it must be racked off as before, and if possible in clear weather. As soon as safety will admit after the first racking, a small hole must be bored near the bung and the bung driven tight; this must be finally sealed and

a spile inserted, giving it vent occasionally, as circumstances require. In March if not perfectly fine, it is drawn from the lees in a clear day and fined; this is usually effected by dissolving in a few quarts of cider, three staples of isinglass, stirring it often; this is poured into the hogshead. It must be drawn off again in ten or twelve days after, lest the sediment should rise; if not fine now, repeat the fining again.

In Herefordshire, according to Dr Mease, (Dom. Ency.) the sediment of the first racking is filtered through coarse linen bags; this yields a bright, strong, but extremely flat liquid; if this be added to the former portion, it will greatly contribute to prevent fermentation, an excess of which will make the cider thin and acid.

The first fermentation in cider is termed the vinous; in this the sugar is decomposed and loses its sweetness, and is converted into alcohol; if the fermentation goes on too rapidly the cider is injured; a portion of alcohol passes off with the carbonic acid.

The design of the frequent rackings, as above mentioned, is principally to restrain the fermentation; but it seems to be generally acknowledged, that it weakens the liquor. It is not generally practised, although the finest cider is often produced by this mode.

Various other modes are adopted with the view of restraining fermentation. Stumming by brimstone is thus performed. After a few gallons of cider are poured into the hogshead, into which the cider is to be placed when racked off, a rag six inches long, previously dipped in melted brimstone, is attached by a wire to a very long tapering bung: on the match being lighted, the bung is loosely inserted: after this is consumed, the cask is rolled or tumbled till the liquor has imbibed the gas, and then filled with the liquid. This checks the fermentation. Yet the French writers assure us, that the effect of much sulphuring must necessarily render such liquors unwholesome.

Black oxyde of Manganese has a similar effect; the crude oxyde is rendered friable by being repeatedly heated red hot, and as often suddenly cooled by immersion in cold water. When finely pulverized, it is exposed for a while to the atmosphere, till it has imbibed again the oxygen which had been expelled by fire. An ounce of powder is deemed sufficient for a barrel. If the cider is desired to

be very sweet, it must be added before fermentation, otherwise not till afterwards. Mr Knight, from his long experience and observation in a country, (Herefordshire, Eng.) famous for its cider, has lately in a letter to the Hon. John Lowell stated, that the acetous fermentation generally takes place during the progress of the vinous, and that the liquor from the commencement is imbibing oxygen at its surface. He highly recommends that new charcoal in a finely pulverized state be added to the liquor as it comes from the press, in the proportion of eight pounds to the hogshead, to be intimately incorporated; "this makes the liquor at first as black as ink, but it finally becomes remarkably fine."

Dr Darwin has recommended that the liquor as soon as the pulp has risen, should be placed in a cool situation in casks of remarkable strength, and the liquor closely confined from the beginning. The experiment has been tried with good success; the fermentation goes on slowly, and an excellent cider is generally the result.

A handful of well powdered clay to a barrel is said to check the fermentation. This is stated by Dr Mease. And with the view of preventing the escape of the carbonic acid, and to prevent the liquid from imbibing oxygen from the atmosphere, a pint of olive oil has been recommended to each hogshead. The excellent cider exhibited by Mr Rice was prepared by adding two gallons of New England rum to each barrel when first made. In February or March it was racked off in clear weather, and two quarts more of New England rum added to each barrel. Cider well fermented may be frozen down to any requisite degree of strength. In freezing, the watery parts are separated and freeze first, and the stronger parts are drawn off from the centre. I finish by adding the following general rules; they will answer for all general purposes, they are the conclusions from what is previously stated. 1. Gather the fruit according to the foregoing rules, let it be *thoroughly ripe* when ground, which should be about the middle of November. 2. Let the pomace remain from two to four days, according to the state of the weather, stirring it every day till it is put to the press. 3. If the liquor is deficient in the saccharine principle, the defect may be remedied in the beginning, by the addition of saccharine substances or alcohol. 4. Let the liquor be immediately

placed in a cool cellar in *remarkably strong, tight, sweet* casks; after the pulp has all overflowed, confine the liquor down by driving the bung hard and by sealing; a vent must be left, and the spile carefully drawn at times, but only when absolutely necessary, to prevent the cask from bursting. The charcoal as recommended by Mr Knight deserves trial.

Fresh and sweet pomace, directly from the press, and boiled or steamed, and mixed with a small portion of meal, is a valuable article for food or for fattening horses, cattle, and swine.

VINEGAR, ETC.

Vinegar is made of the best quality from hard old cider; it must be placed under sheds in casks but two thirds full, with the bung out, and exposed to a current of air.

Sour casks are purified by pouring in a small quantity of hot water, and adding unslaked lime; bung up the cask and continue shaking it till the lime is slaked. Soda and chloride of lime are good for purifying. When casks are emptied to be laid by, let them be thoroughly rinsed with water, and drained, then pour into each a pint of cheap alcohol, shake the cask and bung it tight, and it will remain sweet for years. Musty casks should be condemned to other uses. Cider should not be bottled till *perfectly fine*, otherwise it may burst the bottles. The bottles should be strong and filled to the bottom of the neck. After standing an hour they should be corked with velvet corks. The lower end of the cork is held for an instant in hot water, and it is then instantly after driven down with a mallet. The bottles must be either sealed, or laid on their sides, in boxes, or in the bottom of a cellar and covered with layers of sand.

The process formerly adopted for obtaining new and excellent varieties of apples was, to plant only the seeds of the very best fruits, and to select from these only those individuals with large leaves and strong wood. Reason seemed to dictate this mode; but reason united to experience has taught a different. See the fourth section in the former part of this work.

PEAR. (*Pyrus Communis.*)

THE pear is a tree of pyramidal and elegant form. The leaves are obtuse, elliptical, serrated; the flowers, which are produced on the short spurs of the former year or of the preceding years, are in terminating villose corymbs; the fruit pyramidally formed, tapering towards the stalk, but varying in the different species. Its branches in a wild state are covered with thorns. It grows spontaneously, as we are informed, in every part of Europe, as far north as the latitude of 51°. It will also succeed in those parts of the United States where the apple tree will flourish, provided the soil is suitable. In New England it flourishes as in its native soil. It is distinguished from the apple tree not less by its form than by its disposition to emit suckers from its roots, whenever these become obstructed by stones or other substances, or become bruised or broken. The pear tree is a tree of longer duration than the apple. It is stated that in dry soils they will continue in health, vigor, and productiveness for centuries.

The timber is of a yellowish color, very firm, compact, and fine grained, and is used for joiners' tools, &c. &c. It takes a fine polish, and stained of a black color it resembles ebony. The leaves will produce a yellow dye. In those parts of Europe possessing a climate similar to our own, in Italy and France, the pear is said to be in higher estimation as a dessert fruit than the apple.

Uses.—Good dessert pears are generally preferred to apples; they are characterized by a pulp, tender and melting, or subliquid, as in the *Beurrée* pears, with a juice of a sugary, aromatic flavor; or of a firm and brittle or crisp consistence, or *breaking*. *Cooking* pears should be of large size, the flesh firm, neither breaking nor melting, of an austere rather than sweet taste.

Perry, *poire* of the French, is the fermented juice made in the same manner as cider, from fruit of any size; and the best perry is stated to be little inferior to wine, and the most austere fruits produce the best liquor. The pear is also good for baking, *compotes*, marmalade, &c. They

are also preserved in sugar or syrup of the cane. Dried in ovens, the fruit will keep for years. This mode of preserving is common in France. Bosc has described two modes of drying pears, and adds, that in some of the Cantons of that country, the cultivators annually preserve by these means, supplies of subsistence, extremely agreeable and wholesome during winter and spring. He invites cultivators not to neglect this resource. In this mode of drying, those varieties of middle size, melting and sweet, are preferred. After the bread is drawn from the oven, they are placed on the swept hearth, or on hurdles or boards. This operation is repeated a second, a third, and a fourth time, according to their size, and the degree of heat. The heat must not be so great as to scorch, and the fruit must not be dried to hardness. Lastly, they are placed in bags and preserved in a dry place. The second mode of preserving is practised chiefly on the Rousselets and finest flavored varieties. Bosc states that he has tried them after three years' preservation and found them still good; but they are better during the first year. They are gathered a little before their maturity, and after being half boiled in a small quantity of water, they are peeled and drained. They are next carried on hurdles to the oven, after the bread is drawn, or the oven is heated to a suitable degree; here they remain twelve hours. After which they are steeped in the syrup to which has been added sugar, cinnamon, cloves and brandy. They are again returned to the oven which is now heated to a less degree than at first. This operation is thrice repeated, until they are sufficiently dried, or of a clear brown color, and firm, transparent flesh; and finally they are packed in boxes lined with paper.

Thirty years ago, the number of varieties of pears obtained by cultivation, as stated by Dr Willich, was 1500. But the number of good sorts is stated by Loudon "to be fewer in proportion than that of apples. Dr Van Mons, and the Abbe Duquesne since that period, have obtained from seed during twenty years, upwards of 800 new and approved sorts, from probably 8000 new seedlings." From no less than 80,000, is my impression, but I state from memory only. I have detailed their modes of procedure, as stated by Dr Van Mons, in the former part of this work. Their practice was the reverse of all the popular theories of the day. The results, unlike anything of the kind before known,

OLD PEARS.

The following list of Old Pears comprises all which are described by Duhamel and by Rosier, and some others also of the English writers. Some I have briefly described and others I have only named. — Many of them are still fine. In these descriptions I have availed of every resource. Many of the reasons for the brevity of this review are stated more fully at page 24 to 32, Section 4, of this work.

ABBREVIATIONS.

q. Denotes those varieties of Pears which will grow when inoculated on a quince stock.

Q. Denotes those varieties which were named or described by Mons. Quintinye nearly 150 years ago. I have in many instances appended his remarks of that distant day, and refer to the Edition of his work translated and revised by Mr Evelyn in 1693.

M. Refers to Mr Manning of Salem. S. Refers to Mr Smith of Smithfield, R. I. — These gentlemen have tried and cast off near 200 of the old kinds.

† Denotes "*bad pears*," "*indifferent pears*" or "*outcasts*," on the authority of those to whose initials this chapter is annexed.

R. Refers to the 53 trees of 19 varieties recommended by Rosier.

SECTION I.

SECTION I. comprises all the pears described by Rosier whose descriptions comprehend essentially all those of Duhamel. This section is arranged in the order of their maturity according to Rosier.

AMIRE JOANNET. *St John's. Petit St. Jean.*

The fruit is small, yellow, pyriform; the flesh tender, sweet, not high flavored; juicy but soon turning mealy. One of the earliest of all pears, and chiefly valuable for its early maturity. (q.) July.

PETIT MUSCAT. *Little Musk. Supreme.*

The fruit is very small, yellow, brownish red next the sun; roundish turbinate; half breaking, of a musky flavor. The fruit grows in clusters. July. (q.) (Q.) The tree cankers and is subject to blight. (M.) (S.)

AURATE. *August Muscat* (S.) (q.)

MUSCAT ROBERT. *Robine.* (Q.—)

MUSCAT FLEURI. *Flowered Muscat.* (Q.)

MADELEINE. *Citron des Carmes. Early Chaumontelle.*

A fruit of medium size, pale yellow, with an occasional blush next the sun; form turbinate; flesh white, melting; perfumed. End of July. A fine old fruit. This variety exhibits strong symptoms of decay. (M.) (q.)

HATIVEAU.

[R. I.] **QUISSE MADAME.** *Windsor.* An indifferent fruit. (M₊)

(Q.) **GROS BLANQUET.** (q.)

(+) **EPARGNE** of the French. **JARGONELLE**, of the English. *Grosse Quisse Madame.* (Q.)

The tree is one of the most productive of all pears. The fruit is the best of its season; it is rather large, very oblong; of a green color, a little marbled with red next the sun; the flesh melting, juicy, with a slightly acid, rich, and agreeable flavor. It ripens the last of July. In the vicinity of Boston where this fruit is raised in abundance for the market, it is usually gathered long before fully grown, and mellowed in closely confined masses. End of July. I am sorry to add, that the wood of this capital old variety begins to canker and decay at Salem. (q.)

OGNONET. *Arch Duke of Summer.*

SAPIN.

DEUX TETES. *Double Headed.* (Q₊)

BELLISSIME D'ETE. *Supreme. Beauty of Summer.*

A middling fruit. (M₊) (Q₊) (q.)

BOURDON MUSQUE. *Orange d'Ete.* (Q.) (q.)

BLANQUET A LONGUE QUEUE. *Long Stalked Blanket.* (Q.)

(R. 2.) **PETIT BLANQUET.** *Little Blanket.* (Q.)

Very small and beautiful; the skin very smooth, and yellowish white, breaking, musky; but a very poor fruit. (q.)

GROS HATIVEAU. Early in August.

POIRE D'ANGE. *Angel Pear.* Early in August.

(+) **POIRE SANS PEAU.** *Skinless.* (Q.)

A small oblong pear; the skin is smooth and thin, of a

pale green, slightly colored with red next the sun; the flesh half melting, of a sweet and pleasant flavor. A good fruit, but the wood begins to canker. August. (M.)

PARFUM D'AOUT. *August Perfume.* (q.) Middle Aug.

CHER A DAME. *Prince's Pear.* (S₊) (q.)

FIN OR D'E'TE'. *Fine Gold of Summer.* Middle Aug.

EPINE ROSE. *Thorny Rose. Summer Rose.* (q.)

SALVIATI. (Q.) August.

ORANGE MUSQUE. (Q.) (q.)

ORANGE ROUGE. *Red Orange.* (Q₊) (q.)

[R.2.] ROBINE. *Royale d'Ete. Royal Summer.* (Q.) (q.) S₊

SANGUINOLE. *Bloody Pear.* (Q₊) (q.)

BON CHRETIEN D'E'TE' MUSQUE. *Musk Summer Bon Chretien.* (M₊) (Q₊)

GROS ROUSSELET. *Roi d'Ete.* (Q.) (q.)

POIRE D'ŒUF. *Egg Pear. Swan's Egg* of For. and Coxe. (S₊)

CASSOLETTE. *Lechefriend.* (Q.) (q.)

GRISE-BONNE. Last of August.

MUSCAT ROYALE. Beginning of September.

JARGONELLE, of Rosier and the French. *Quisse Madame*, of the English and Americans.

This last name has been applied to another fruit; both are called bad. (Q₊) (S₊)

[R. 4.] * ROUSSELET DE RHEIMS. *Petit Rousselet.*

The fruit is small, pyriform; the eye is large and even with the surface; the stalk ten lines, the fruit twentyseven lines and twenty in its transverse diameter; greenish yellow in the shade, brownish red next the sun; the flesh half melting, musky, very perfumed; excellent to put in brandy and for drying. Last of August. The tree is productive. (q.)

AH MON DIEU! *My God Pear!* (q.) *Poire D'Abondance.* Nouv. Cours Comp.

Valuable only for its productiveness. (Q.) (*.)

FINE OR DE SEPTEMBRE. *Fine Gold of September* Beginning of Sept. (q.)

FONDANTE DE BREST. *Inconnue Cheneau.* (Q.)

EPINE D'E'TE'. *Summer Thorn. Green Catharine.

Rather small, tapering to the stalk which is long; the eye even with the surface; of a green color covered with dark russetty blotches; the flesh is breaking, of a very musky flavor. The tree is very productive. Late in Aug. (q.)

POIRE FIGUE.**BON CHRE'TIEN D'E'TE'. *Gracioli Summer Bon Chrétien.***

Of great size and beauty and only esteemed on this account. The tree is a bad bearer and cankers; the fruit often blights, and soon rots at the core. (q.)

ORANGE TULIPE'E. *Striped Orange. Tulip Pear. Villaine d'Anjou. (Q.) (q.)***BERGAMOTTE D'E'TE'. *Summer Bergamotte. Milan de Beuvriere. (Q.) (S.) (q.)******BERGAMOTTE ROUGE. *Red Bergamot.***

The fruit is rather small, short, turbinate, pale yellow, but red next the sun; tender, melting, juicy, sugary, high flavored. August. (q.) (M.)

VERTE LONGUE. *Gros Mouille Bouche. Mouille Bouche. Long Green Mouth-water.

The fruit is rather large; form varying from pyramida to turbinate; the skin smooth, of a dark green color the flesh melting, of a sweet, rich, and pleasant flavor. It ripens the beginning of Aug. An old but esteemed variety. (Q.) (q.) (M.)

[R 4.] BEURRE'E. *Brown Beurée. Beurée Gris. Beurée Doré. Beurée Rouge.*

Rather large; obovate, tapering towards the stalk; greenish yellow, covered with thin russet; but occasionally dusky red next the sun; the flesh melting, buttery, rich and excellent. October. One of the most ancient, and once the best of all Pears. Even at this day it is still productive, and fair in some few gardens of the city, but it is rarely if ever seen in its markets. With the cultivators who furnish its supplies, it has now become an outcast. The fruit blights and the wood cankers. (Q.) (q.)

ANGLETERRE. *Beurre D'Angleterre. Sept.*

DOYENNE. *Doyenne blanc. Beurré blanc. Bonne Enté. Carlisle* of Mil. and others. *Yellow Butter. Beurré. Dore* or *St Michael* of Coxe. *Garner* of Rhode Island. Many other names might be added.

The tree was once with us, most extraordinarily productive; the fruit the fairest, the most beautiful and delicious, and universally admired. This most ancient of all pears has now become an outcast, intolerable even to sight. In some sections of the city it is even now productive and fair, but it is seldom seen in its markets. The fruit is of medium size, roundish oblong, diminishing towards the stalk, which is short, thick and strong. The skin smooth, of a pale lemon color, or sometimes colored with red next the sun; the flesh white, melting, juicy, of delicious flavor. Oct. Such was the *St Michael* once with us. (Q.) (S.) (q.)

BEZI DE MONTIGNY. (q.)

BEZI DE LA MOTTE. *Bien Armudi. Beurré blanc de Jersey.* (Q.)

This old fruit has lately disappeared from the markets of Paris. Nov. (q.)

BERGAMOTTE SUISSE. *Suisse, Striped Bergamotte.* (Q.) (q.)

BERGAMOTTE D'AUTOMNE. *Autumn Bergamotte.*

The fruit is small, globular, depressed; the skin rough, yellowish green in the shade, dull brown next the sun; the flesh pale, melting, gritty at the core, juicy, sugary, perfumed. September. (Q.) (q.)

BERGAMOTTE CADETTE. *Cadette.* (Q.) Sept. (q.)

JALOUSIE. *Poire de Jalousie.*

FRANGIPANE. *Jasmin.* (Q.) (q.)

LANSAC. *Dauphine, Satin.* (Q.) Oct. (q.)

VIGNE. *Demoiselle.* (Q.) Oct. (q.)

PASTORALE. *Musette d'Automne.*

The fruit is large, very long, and in shape like the *St Lezaine*; yellow, but red next the sun; half melting, a little musky, good; sweet on dry soils, in dry years, austere otherwise. Oct. Nov. to Jan. (Q.)

BELLISSIME D'AUTOMNE. *Vermillon. Beauty of Autumn. Suprême.* End of Oct. (q.)

[R 3.] MESSIRE JEAN. *Monsieur Jean Dore.*

The fruit is short and turbinate, of medium size; of a yellow or sometimes gray yellow color; the flesh breaking, juicy, subject to grittiness, but of a rich flavor. The tree is a good bearer, and the fruit is by some much esteemed. It ripens late in October, and is good to put in brandy or to dry. (q.)

MANSUETTE. *Solitaire.*

ROUSSELINE. (Q.) *Muscat a longue queue.*

BON CHRETIEN D'ESPAGNE. *Spanish Bon Chretien.* (Q.) (M.)

[R 4.] CRASSANNE. *Bergamotte Crassanne.*

Some state that this fruit derives its name from *crassus* [thick]; but M. Quintinie says from *ecrase* [to crush]. It is over medium size, roundish turbinate; greenish yellow, coated with russet; the flesh tender, melting; juice rich, sugary. October. This fruit is no longer to be trusted; it is liable to canker and to blight.

BEZI DE CASSOY. *Roussette de Anjou.* (Q.)

[R. 4.] DOYENNE GRIS. *Doyenné Roux. Gray Doyenné. Red Doyenné,* according to Pom. Mag.

Medium size, turbinate; the stalk short; of a bright cinnamon color, but red next the sun; the flesh yellowish white, melting, saccharine, rich and of excellent flavor. Season Oct. This once excellent variety has now become as liable to blight at Salem as the St Michael. (M.) (q.)

MERVEILLE D'HIVER. *Wonder of Winter. Amadot.* (Q.)

EPINE D'HIVER. *Winter Thorn.* (Q.) (q.)

LOUISE BONNE. (Q.) *Good Louise.* (S.) Nov. and Dec. (q.)

(R 2.) MARTIN SEC. *Dry Martin.*

An indifferent fruit, but good for drying. (Q.) (M.) Dec. Jan. (q.)

MARQUISE. *Marchionesse.* (Q.) (q.)

***ECHASSERIE.** *Bezy de Chassery.* Mr Lowell. (M.) (Q.) *Ambrette* of Cox and Fes. New Amer. Gard. *Tilton* of New Jersey.

The leaves of the Echassery have serratures, the Ambrette

none. A fruit below medium size, form varying from nearly globular to oblong; the eye on a level with the regular rounded crown; the skin rough, russet green, coarse, and thick, which eminently qualifies it for keeping; at maturity it inclines to yellow; the flesh melting, juicy, of a sweet and musky flavor. The tree requires a dry, warm soil, and bears abundantly. The fruit is very ordinary in appearance; it keeps well in winter, and should not be eaten too soon, or till long after it is soft. (q.)

AMBRETTE, [not of Coxé.] *Belle Gabrielle. Trompe Valet.* (Q.)

Tree thorny; leaves without serratures. Nov. Feb. (q.)

[R. 2.] **CHAUMONTELLE.** *Bezi de Chaumontelle.*

A noble old variety; size large to very large; variable in form; at maturity yellow, slightly shaded with red next the sun; the flesh melting, juicy, sweet, musky, excellent. December to January. Although this fruit is still fine and fair in Salem and its suburbs, and in some particular sections of the city and some few sheltered situations in its vicinity; yet it has long since disappeared from its markets, and is another of the old sorts which are rarely to be seen in the markets of Paris. With us this fruit has become an outcast. (S.+) (q.)

VITRIER. *Poire du Vitrier.* November and December.

BEQUESNE. (Q.+) Good only for baking.

BEZI D'HERI. *Besidery. Bezi d'Airy?*

This old fruit has lately disappeared from the markets of Paris and we may rely that it is not without cause. (Q.)

[R. 1.] **FRANC-REAL.** *Fin or d'Hiver.* (Q.)

Good for cooking. (q.)

[R. 4.] **St GERMAIN.** *Inconnue la fare.*

An ancient and once celebrated fruit; large, pyramidal, tapering regularly to the stalk; of a green color but at maturity of a yellowish cast, covered with russety spots; the flesh very melting, very juicy, saccharine, slightly acid and delicious. November to March. Such was the St. Germain once with us; but except only in some sections in the city and occasionally in some sheltered situations near, it has long since become an outcast and abandoned variety. The wood cankers, the fruit blights and this defection has

extended south to Rhode Island and to some parts of New York. (S.) (q.) (Q.)

[R. 4.] VIRGOULEUSE. *Chambrette. Poire de Glace.* Q.

Another old celebrated fruit, rather large, obovate, inclining to pyramidal; the skin smooth, of a deep green color; at maturity pale yellow; the flesh melting, juicy, rich, high flavored and excellent. November to February. I have before noted that this fruit has disappeared from the markets of Paris, and probably not without a reason. It is sometimes still fair in Boston but has disappeared from its markets. The tree cankers, and the fruit has long since become an outcast. (q.)

JARDIN. *Poire de Jardin.* December.

[R. 2.] ROYALE D'HIVER. *Royal Winter.*

Above medium size; form pyramidally turbinate; the skin smooth, yellow, but bright red next the sun; flesh yellowish, nearly melting, juicy, rich, sweet, and well flavored. December to February. This ancient and once celebrated fruit, has disappeared as I have before stated, from the markets of Paris; and although it is sometimes still fair in our city it is yet no longer or but rarely seen in our markets. It has become blighted and worthless. (S.)

ANGELIQUE DE BORDEAUX. *St. Marcel. Gros Franc Rcal.* (Q.) January, February.

SAINT AUGUSTIN. (q.)

CHAMPE RICHE D'ITALIE. Dec. January. (q.)

LIVRE. *Poire d'une Livre. See Baking Pears.*

TRESOR. *Poire Tresor d'Amour.* Good for baking. (Q.)

ANGELIQUE DE ROME. q.

MARTIN SIRE. *Ronville.* q.

BERGAMOTTE DE PACQUES. *Easter Bergamotte.*

TERLING. *Winter Bergamotte.* Q.

[R. 4.] COLMAR. *Poire de Colmar. Poire Manne. Incomparable.*

This ancient fruit is rather large; pyramidally formed, inclining to turbinate; the skin smooth, green, changing to yellow at maturity; sometimes slightly colored with red next the sun; the flesh melting, juicy, saccharine and of excellent flavor. Dec. to April. The disappearance of

the Colmars from the markets of Paris, which I have already mentioned, seems a circumstance which they much deplore. And although this fruit is still fair in some sections of the city, it has long since gone from our markets. With us it is considered an outcast. Its defection is noted also in Rhode Island. (S₊) (q.)

BELLISSIME D'HIVER. *Teton de Venus. Beauty of Winter.*

TONNEAU. See Baking Pears. (q.)

DONVILLE.

TROUVE. April.

[R. 2.] **BON CHRETIEN D'HIVER.** *Pore d'Angoise. Winter Bon Chretien.* (Q.)

An ancient fruit, very large, of a turbinated or pyramidal form. The crown large, sides angular and tapering towards the summit, which is narrow; the stalk very long and surrounded by protuberances; the flesh breaking, rather sweet and juicy. This fruit often grows enormously large and may be preserved till May. The fruit is liable to crack, and is not at this day much esteemed either for productiveness or other good qualities. The Pound Pear is thought very superior in every respect. Mons. Quintinie placed this fruit at the head of all old pears on account of its *name*, (Good Christian,) beauty, size, and keeping qualities, more than for any good quality. (q.)

ORANGE D'HIVER. *Winter Orange.* (Q₊) (q.)

BERGAMOTTE DE SOULERS. *Bonne de Soulers.* (q.)

DOUBLE FLEUR. (Q₊) See Baking Pears. (q.)

POIRE DE PRETER.

POIRE DE NAPLES. *Easter St Germain. Lent St Germain.* (Q₊) (q.)

CHAT BRUSLE. Oct. to winter. (Q₊)

[R. 2.] **MUSCAT L'ALLEMAND.** *German Muscat.* (q.)

Considered by many an outcast. The wood cankers, the fruit blights. (S₊) (M₊) (q.)

IMPERIALE A FEUILLES DE CHENE. *Imperial Oakleaved.* April and May. (q.)

SAINT PERE. *Poire de Saint Père.* Baking.

POIRE A GOBERT. June.

[R. 2.] **BERGAMOTTE D'HOLLANDE.** *Holland Bergamotte. D'Alençon.*

This fruit keeps till May, and has with some become an outcast. (S₊) (q.)

TARQUIN. April and May.

SARASIN. Is considered here as an outcast. (S₊) (q.)

[R. 4.] **BERGAMOTTE SYLVANGE.**

The *Sylva* *Vert d'Hiver* is better than this, and the best of all the Sylvanges. See the article in the class of New Pears.

OLD PEARS. — SECTION II.

THE FOLLOWING OLD VARIETIES ARE DESCRIBED BY DUHAMEL

AND OTHER AUTHORS, IN THE ORDER OF MATURITY.

ROUSSELET HATIF. *Early Rousselet. Catharine.*

The fruit is small, pyriform, yellow in the shade, bright red next the sun; half breaking, saccharine, very perfumed. July.

GROS BLANQUETTE RONDE. Duh. July.

GREEN CHISSEL.

The tree is feeble but productive. The fruit in clusters, is small, nearly globular; color green, but brown next the sun; gritty, saccharine, perfumed. Last of July.

SUGAR TOP, or July.

AMBROSIA. *Early Beurre.* Lind.

Medium sized; form roundish, flattened; skin smooth, greenish yellow; flesh tender, rich, sugary; juice perfumed. Last of August.

MUSCAT ROYAL. Duh. End of Aug.

AUTUMN BOUNTY. (S₊)

BROCA'S BERGAMOT. *Gansel's Bergamot.*

A delicious round fruit, but miserably unproductive. An outcast here on this account. (S₊) October.

CRASSANNE PANACHE. Rosier.

Leaves variegated; an ornamental variety.

ELTON. Hort. Trans.

An old fruit of medium size, oval form, russety orange next the sun ; flesh breaking and excellent, but soon growing mealy. September.

K. L. FORELLE. Pom. Mag. C. Hort. Trans.

FORELLEN-BIRNE. Diel. POIRE TRUITE, of the French.

A fruit celebrated by the English and German writers for its superior beauty, excellence, and productiveness. The size medium, form obovate, color at maturity lemon in the shade, a rich sanguine or crimson next the sun ; speckled and covered with broad ocellate spots ; hence called by the French *truite* or *trous* pear ; flesh white, juicy, buttery ; flavor rich, subacid, vinous. Dr Diel assigns its nativity to Northern Saxony. In the vicinity of Boston it has disappointed expectation, and is regarded as a decayed variety. November.

GREEN PEAR OF YAIR. Hort. Trans.

Middle sized, regular form ; green, slightly russetted ; flesh yellow, melting, sweet. A very productive and popular Scotch variety of great excellence. Sept.

HOLLAND GREEN. Coxe. *Holland Table Pear.*
(M₊.)

ORANGE BERGAMOTTE. Coxe. (M₊.)

PRINCE'S SUGAR. *Lowre's Bergamot.*

Middle sized, not very rich, but good. With some it has become an outcast. (S₊.) Very productive.

RED CHEEK. *English Red Cheek. English Catharine.*

Sweet, but soon turns mealy. Not much esteemed. Early in September.

RUSHMORE'S BON CHRETIEN.

Esteemed by some in New York. With us only esteemed for baking. An outcast with some. (S₊.)

SEPTEMBER ORANGE. (M₊.)

SUCRE VERT. Duh. *Green Sugar.* (q.) (Q.)

Middle sized, round, inclining to pyramidal ; the skin smooth, always green ; melting, juicy, very sweet. I have stated that this fruit has made its exit from the markets of Paris. Last of Oct. Excellent some years.

SWAN'S EGG. *Moorfowl Egg,* of Boston.

Small, oval, turbinate ; green, but dull russet brown next

the sun ; flesh tender, rich, saccharine, musky. The tree grows rapid and upright, and is productive. A favorite Scotch fruit. November.

VERTE LONGUE PANACHE'. *Culotte de Suisse. Suisse. Striped Dean.*

Medium size, pyramidal ; striped with yellow on a green ground ; pale red next the sun. Indifferent. The bark is striped ; the fruit a curiosity. An outcast with some (S₊) and not much esteemed by others. Rarely seen at this day in the markets of Paris. September.

BON CHRETIEN D'AUCH. *D'Auch. (M₊) (S₊)*
ROUSSELET D'HIVER. *Duh. Winter Russet ? (Q₊)*

OLD BAKING PEARS.

CATILLAC.

FORTY OUNCES.

The fruit is very large, roundish turbinate ; pale yellow, but deeply stained with red next the sun ; flesh firm and breaking, the flavor astringent. A good bearer ; an excellent baking pear, in use all winter.

DOUBLE FLEUR.

ARMENIAN.

Large, round ; at maturity yellow, but purple red next the sun ; breaking, juicy. An ornamental variety. (Q₊) Good only for baking.

DOUBLE FLEUR PANACHE'.

An ornamental variety, with double flowers and striped fruit. Good for baking. Feb. to April.

GROS RATEAU GRIS. Bon Jard. Quint. Lind.

BLACK PEAR OF WORCESTER.

LOVE PEAR, PARKINSON'S WARDEN.

POUND PEAR, but not of Langley.

POIRE D'UNE LIVRE.

GRANDE MONARQUE, of Knoop.

Fruit very large, roundish turbinate ; skin rough, yellowish green, but obscure red or brown next the sun ; flesh very hard, coarse, austere, but good baked or stewed. It does not succeed on the quince. November to February.

*IRON PEAR.

Rather large ; its color a yellowish or iron russet ; form

rather oblong, regular, narrowing a little towards the summit; flesh breaking, juicy, and astringent. This pear keeps till May, is a good bearer, and an excellent baking sort.

POIRE DE TONNEAU. Bon Jard. Lindley.

BELLE DE JERSEY, UVEDALE'S ST GERMAIN.

PICKERING, UNION, UDALE'S WARDEN.

Fruit very large, oblong, tapering to the crown, but compressed between the middle and the stalk; in form of a cask; skin smooth, dark green, but brown next the sun; at maturity yellow and red; flesh white, hard, austere; juice astringent; an excellent pear to cook.

WARDEN.

Medium size, turbinate form, of a dark russetty yellow color; an autumn fruit, and excellent for cooking. This is a very productive variety.

***POUND.**

One of the most valuable of our winter baking pears. It is highly esteemed and is raised in considerable quantities and barrelled for the markets or for exportation. The trees are extraordinary for their vigorous growth and productiveness; the fruit is very large, oblong, pyramidal, rounded at the crown, diminishing towards the stalk, which is very strong; of a rusty green color, but brownish red next the sun; firm, breaking, juicy and astringent; most excellent for baking or preserving. It will keep till April or May.

It may not perhaps be improper, here to subjoin, a list of such still existing varieties, as M. Quintinie has in his day, in a more extensive and partly obsolete list, denounced and designated as *pears of indifferent quality*, and *bad pears*. I refer to the edition of Mr Evelyn, printed in 1693. I do not, however, assert that this list is to be considered an infallible guide, but I believe it to be generally so: and if true at that distant day, how much more reason have we for believing it is at least equally true now.

I add the following still existing varieties, which, on the authorities which I annex to each, have been denominated *Indifferent Pears* — *Bad Pears*, or *Outcasts*. Those marked B, are, however, good for baking.

Brutte Bonne. Indif. Q ₄ .	Cluster. Outcast. Q ₄ .
Caillot Rosat. Indif. Q ₄ .	Golden Beurré. Outcast. S ₄ .
Fin or d'Orleans. Indif. Q ₄ .	Lott's Bergamot. " S ₄ .
Gilgile. Bad. Q ₄ .	Platt's Bergamot. " S ₄ .
Queen of Winter. Reine d'	Leggett's. " S ₄ .
Hiver. Indif. Q ₄ .	Red Butter Pear. " S ₄ .
St Francis. Bad. B. Q ₄ .	

NEW PEARS.

The following list of new varieties are in part American, —a small portion are English, and a very few of French origin; but the greatest portion are Flemish, of all those not otherwise noted. Many additions yet remain to be made to this list, from the very numerous new kinds, and mostly of Flemish origin, which were sent through the liberality of the London Horticultural Society, in the springs of 1834 and 1835, their excellence having at Chiswick been proved. And especially the very numerous list of some hundreds of new kinds of the highest character—the noble donations which were sent us by Prof. Van Mons, of Louvain, during those same years—many of which had not been disseminated even in Europe.

A. Denotes those of American origin.

E. Denotes those few which are native English.

F. Denotes those few kinds which are natives of France.

Most of all the rest are of the new Flemish kinds.

SECTION I.

NEW PEARS.—SUMMER.

D'AMANDE D'E'TE'. Thompson.

Large, pyramidal; color green and yellow, juicy and good. September. [August?]

D'ANANAS D'E'TE'. Thompson.

Large, obtusely pyramidal; color brown, but red next the sun, beurré and good. September. [August?]

BELLE DE BRUXELLES. N. Duh. Nouv. Cours Complet.

The young wood is large, short, gray in the shade, red next the sun; leaves small, oblong; fruit large, pyramidal, its stalk on its summit; skin beautiful clear yellow, but bright red next the sun; the flesh is white, fine, of an agreeable flavor. The fruit is the largest and the most beautiful of the season, which is early in August.

BEURRE D'AMANLIS. Thompson.

Large, obovate; color brown and green; beurre and excellent. Sept. [August?]

BLOODGOOD PEAR. Mr Bloodgood. [A.]

The fruit is of moderate size and roundish form; of a yellow color throughout, and somewhat russeted. The stalk an inch long. A pear of superior quality, ripening in July. This account is from Thomas Bloodgood, Esq. of New York, firm of James Bloodgood & Co. of Flushing.

BURLINGHAME. Dr S. P. Hildreth. [A.]

A seedling raised by Mrs C. Burlinghame of Marietta, Ohio. A fruit of medium size, surface smooth, with longitudinal depressions; of a yellow color, changing to rich crimson next the sun. Flesh melting, white, very juicy, sugary and delicious. Middle of July to the last of Aug.

CALEBASSE MUSQUEE. Lindley.

This fruit is four inches long, irregular, broadly angular, and knobby; its diameter three eighths of its length, compressed below the middle; the color deep yellow next the sun, and partially covered with thin orange gray russet; flesh breaking, a little gritty, juicy, very saccharine. This pear will probably ripen the last of August with us.

COLMAR D'E'TE'. Annales d'Horticulture. [F.]

The tree resembles the Colmar, but its bark is always creased; it is a great bearer. A very good species, originated by M. Noisette and but little disseminated. August and September.

***DEARBORN'S SEEDLING.** [A.]

This pear originated at Brinley Place, the mansion of the Hon. H. A. S. Dearborn, in Roxbury. A seedling of 1818. The tree is of vigorous growth; the fruit of medium size, rounded at the crown, and regularly diminishing in a parabolic manner to the stalk, which is inserted in a

small cavity; the skin is smooth, thin, green, speckled with russet points, and a fawn colored blotch around the stalk, which is short and curved; the skin delicate yellow; the flesh very melting, and fully equalling in flavor the once famous and delicious St Michael. The first fruit was examined and thus named, by the committee of the Massachusetts Horticultural Society, in August, 1831.

DE CANDOLLE. Thompson.

Middle sized, obovate; of a pale green color; juicy and good. Sept. [August?]

DUQUESNE D'E'TE. Thompson.

Middle sized; obtusely pyramidal; color brown or pale green; beurre and good. Sept. [August?]

EARLY BERGAMOT. Pom. Mag. Lind. [F.]

A medium sized pear, of a green color, tinged at maturity with yellow; streaked with brownish red next the sun; of a roundish form, flattened at its base; the flesh yellowish white, very juicy, a little breaking and gritty, but very rich and sugary. Ripe in August.

A new fruit sent by M. Thouin to the London Horticultural Society in 1820. A most excellent early variety; an abundant bearer.

GREEN SUMMER SUGAR. Dr Willich. C.

SUGAR PEAR OF HOYERSWERDA.

SUGAR D'HOYERSWERDA.

An excellent new fruit, of moderate size, raised from the seed of the Green Sugar, (*Sucre Vert*) cultivated in Lower Lusatia; it is oblong, but arched towards the crown; of a grass green shade, spotted in every direction with green and gray dots; the pulp is mellow, without grittiness, and surpasses in taste all other summer pears. Its juice is of a vinous and subacid taste, decidedly superior, at least in taste, to the Green Sugar. If it be suffered to ripen on the tree it acquires a greenish yellow shade. Ripe from the middle to the end of August, and it can be preserved only a few weeks. The tree bears fruit every year; and the wood remains sound in the severest winters.

INNOMINE'E. Dr Van Mons.

The fruit is very large, and from the contraction of the short neck, it resembles the *Frederic de Wirtemberg*. The stalk is long, large and straight; the skin clear green, but yellowish at maturity, marbled with pale brown; flesh

delicate, melting, saccharine, with an agreeable perfume. Although between a summer and autumn fruit, it does not become mealy. — *New England Farmer*, vol. x. No. 7, extract of an article written by Dr Van Mons, in the *Revue des Revues*, inserted by the Hon. H. A. S. Dearborn.

***JULIENNE.**

L'ARCHIDUC D'E'TE'. SUMMER BEURRE'. Syn. of Coxé.

SUMMER DOYENNE', erroneously.

The tree grows upright and handsome ; it bears young and most abundantly. The fruit is of medium size, inclining to obovate, tapering towards the stalk, which is short ; the skin is smooth, of a pale yellow color, with a faint blush next the sun ; the flesh is perfectly melting, rich, and juicy. One of the most beautiful and valuable fruits of its season, and deserving an extensive cultivation. It ripens the last of August.

PASSANS DE PORTUGAL. Thompson.

Of medium size, obovate form, of a pale brown color ; juicy and excellent. August. A good bearer.

SABINE D'E'TE'. Lond. Hort. Trans. Lindley.

Raised in 1819, by Mr Sloffels, of Mechlin ; named for Mr Sabine. The form is pyramidal, terminating in a round blunt point at the stalk ; the color yellow, but fine scarlet next the sun ; the whole surface smooth, regular, and polished ; flesh white, melting, juicy, and highly perfumed. It ripens early in August. The young wood is slender ; it bears abundantly.

SEIGNEUR D'E'TE'. Lond. Hort. Trans. Lindley.

This pear has been known many years in Flanders. It is above the middle size, a blunt oval ; of a fine orange color, but bright scarlet next the sun, and marbled ; the flesh melting, free from grit ; a rich and beautiful pear. It ripens the beginning of September, and will probably ripen here in August. The tree is handsome and bears well.

VALLE FRANCHE. Thompson. [F.]

DE VALLE'E.

A middle sized fruit, of obovate form ; of a yellowish green color ; juicy and excellent. A good bearer. Aug.

SECTION II.

NEW PEARS.—AUTUMN.

In this section are included all those new varieties whose period of maturity has not been ascertained.

ALEXANDRE DE RUSSIE. Lindley.

An uncommonly fine new fruit, above the medium size, obliquely pyramidal, Bon Chretien formed, with an uneven knobby surface; the stalk short, thick, depressed; of a greenish yellow color, almost covered with cinnamon russet; the flesh almost white, gritty, but tender and mellow; juicy, saccharine, with a slight musky perfume. It ripens in October. [September?]

ALTHORPE CRASSANNE. Mr Knight. [E.]

Middle sized, roundish; of a brown and green color, beurre and excellent. Originated by Mr Knight, and sent by him to Mr Lowell in 1832. He says "this variety is very excellent and rose flavored. This and the *Monarque* will not be equalled by any other variety in your climate; both grow rapidly and bear abundantly." November.

***ANDREWS.**

AMORY, GIBSON.

This fruit is large; of a form inclining to oblong, melting, and of most excellent flavor. It ripens in September.

***BARTLETT.**

WILLIAMS BON CHRETIEN. (E.)

The Bartlett Pear is so named for the gentleman in whose garden it was found, Enoch Bartlett, Esq. of Roxbury, one of the Vice Presidents of the Massachusetts Horticultural Society. It has been by him, widely and liberally disseminated. It is a very great favorite wherever known and is undoubtedly an imported fruit. The tree and its leaf are beautiful; they resemble those of the Williams Bon Chretien; and the description of the fruit agrees so exactly, that not a doubt can exist but they are the same. The William's Bon Chretien originated in Berkshire, England, in 1796, and was subsequently extensively propagated by Mr Williams near London — hence its name. It seems capable of sustaining its high character in a diversity of climates. It flourishes at Malta. [See Williams' Bon Chretien.]

BELLE ET BONNE. Pom. Mag.

SCHONE AND GUTE, of Taschenbuch, **GRACIEUSE,** Thompson.

This very valuable variety was sent to the London Horticultural Society in 1826, by Messrs Baumann of Bollwiler — and much as our autumn pears have been improved, this ranks among the very best of them, being a delicious bergamot of the best kind. This fine, new pear has been erroneously cultivated in Europe, under the name of Charles D'Autriche, Belle de Bruxelles, and Bergamotte D'Crasanne, which are distinct fruits. "A harvest pear, magnificent, very large, globular, depressed, the stalk long; skin greenish yellow, but next the sun yellow, with spots of russet; flesh white, sweet, exceedingly rich and agreeable, perfumed. The tree is very productive. September."

LA BELLE DE FLANDERS. Pom. Mag.

FLEMISH BEAUTY of Pom. Mag. and Lind.

BOSCH BOUCHE NOUVELLE.

IMPERATRICE DE LA FRANCE. **BRILLIANT.** Pom. Mag.

This new Flemish pear is of the first rank in quality; it is large, very beautiful, and bears abundantly; and will without doubt, one day become a most important variety in the list of cultivators. The fruit is large, [the engraving sent by Dr Van Mons is near four inches long and over three inches broad;] obovate, obtuse at the stalk; greenish yellow russet, but tinged with crimson red next the sun; the flesh rather firm; yellowish white, sweet, rich, melting and excellent. It must be gathered while it adheres yet firmly to the tree to have it in the utmost perfection. It ripens in October, and will keep a month or two. It may ripen here in September.

BELLE LUCRATIVE. Lindley. Braddick. Thompson.

A beautiful new Flemish pear; middle sized, roundish, tapering to the stalk; of a pale yellow color; slightly russeted, and red next the sun; flesh a little gritty, but soft and mellow; very juicy, sugary, with a slight musky perfume. Early in October [September?] Thompson calls this a crisp pear, of middling good quality.

BELMONT. Mr Knight. Thompson. [E.]

A new large fruit, obovate in form, of a pale yellow or brown color; juicy and excellent for cooking. The tree is a great bearer. Nov. [Oct. ?] Raised by Mr Knight and sent by him in 1832 to Mr Lowell. Mr Knight calls it "very excellent here in November."

BERGAMOTTE DES PAYSANS. Chev. Parmentier.

A middle sized pear ; the flesh is melting, and excellent flavored. September.

BEURRE' D'ARGENSON. Thompson.

A large pyramidal fruit, of a yellowish brown color ; beurre and excellent. November. [October ?]

BEURRE' DE BEAUCHAMP. Van Mons. Nouveau Cours Complet d'Agriculture, vol. xii. p. 127.

This fruit is nearly round ; color yellowish green, speckled ; flesh almost white, half melting, having a peculiar flavor which is very agreeable. It ripens in November. The tree is very productive, says Van Mons, who sent us the specimen.—*Bosc.*

***BEURRE' BOSC.** Van Mons. Nouveau Cours Complet d'Agriculture, vol. xii. p. 125.

The fruit is very long, terminated by a crown three inches in diameter ; of a gray fawn color, but yellowish at maturity ; the flesh white, melting, half buttery, excellent ; ripe at the end of November. In its form and flavor, it much resembles the Calebasse Marianne. Figured Pl. 18, of the *Annales Generales des Sciences.*—*Bosc.*

BEURRE' COLOMA. Chev. Parmentier.

This new Flemish pear is of large size ; the flesh melting ; juice sugared, and of good flavor. It is ripe in autumn.

BEURRE' CRAPAUD. Thompson.

Middle sized, obovate ; color pale green : beurre and excellent. October.

BEURRE' CURTET. Van Mons. Annales d'Horticulture. [F.]

The fruit is oval, rounded ; its length three inches, breadth the same ; the skin is green, thin, striped, and stained with red next the sun ; the flesh white, melting, full of sweet juice, quickened by an aromatic tartness, peculiar to the Bergamots. Last of September to middle of Oct.—*New England Farmer*, vol. x. No. 22, inserted by Hon. H. A. S. Dearborn. Obtained in 1828, by M. Simeon Bouvier, an apothecary of Jodoine, who has dedicated it to M. Curtet, a physician of Brussels.

BEURRE' DELBECQ. Loudon, from Bull. Univer.

This is a new autumn pear, and is said to be a very su-

perior fruit. The tree is more lofty and of handsomer form than any other variety. It was raised by Van Mons from seed sown in 1813.

BEURRE' DUQUESNE. Chev. Par. Thompson.

A new Flemish pear, originated it is said by Van Mons. Middle sized, of a pyramidal form; pale yellow, juicy and good. Oct. Chev. Parmentier calls this a large pear.

BEURRE' DUVAL. Chev. Par. Thompson.

A new Flemish pear, raised by M. Duval. Middle sized; obtusely pyramidal; color pale green; beurre and excellent. November. [October?] Chev. Parmentier calls this a large pear.

BEURRE' KNOX. M. Van Mons. Lindley.

Large, oblong or obovate; tapering to the stalk; of a pale green or yellow color, thinly russetted next the sun; flesh a little gritty, but mellow; juice saccharine, but without any peculiar flavor. October and November. Raised by Dr. Van Mons, and sent by Mr Knight to Mr Lowell in 1823.

BEURRE' ROMAIN. Nouv. Cours. Complet. Calvell.

The fruit is large, nearly round, flattened at the summit. Of a yellowish green in the shade; slightly colored with red next the sun; the flesh is melting and exquisite; but must be eaten at maturity, as it becomes clammy soon after. Beginning of September.—*Bosc.*

BEURRE' DE SAINT QUENTIN. Annales d'Horticulture. [F.]

The fruit is in form of the common Doyenné, not quite so long, and larger in circumference; demi beurre; well calculated for large orchards, being a great bearer. Produced by M. Noisette.

BEURRE' SPENCE. M. Van Mons.

This new Pear was raised by Dr Van Mons. It possesses a melting and delicious flesh, its taste inestimable and according to some unrivalled. It ripens in Belgium in September, and merits a distinguished place in our gardens, according to Dr Van Mons, and Mr Braddick.

BEURRE' VAN MONS. Thompson.

Middle size; pyramidally formed; skin russetted; flesh beurre, and excellent. November. [October?]

BEZI DE LOUVAINE. Van Mons. Nouveau Cours Complet d'Agriculture, vol. XII. p. 126.

The fruit is long, its transverse diameter two and a half inches; skin a delicate green, but brown red next the sun; the stalk short; the flesh buttery, very agreeably perfumed. It ripens in October. Figured Pl. 101, of the *Annales generales des Sciences*.—*Bosc.*

BISHOP'S THUMB. Lindley. Thompson.

ROUSSELINE (of some). Thompson.

Large, very oblong, or twice as long as broad. Dark green, covered with iron russet, brownish red towards the sun; flesh yellowish green, melting juicy, high flavored and excellent; not handsome. October. [September.]

BLEECKER'S MEADOW. [A.]

A native fruit of small size, roundish form, of a yellow color; the flesh, melting, juicy, sweet, musky, and of fine flavor. A good bearer. October.

BON CHRETIEN FONDANTE. Lindley. Thompson.

A most excellent new Flemish pear. It is large, oblong, regular in its outline; the stalk short, stout; mostly covered with deep cinnamon russet; flesh yellowish white, a little gritty, but rich and buttery, and full of a highly saccharine, rich flavored juice, resembling that of the St. Germain. And of October to November. [October?] The tree is a great bearer.

***BOURGMESTRE.**

A new Flemish pear, so named in honor of the Chevalier Joseph Parmentier, Bourgmestre. He describes it as a melting and excellent fruit. We have seen specimens exhibited by John Heard, Jr., Esq. of Boston, weighing thirteen ounces, very large and beautiful, russet yellow in the shade, with a blush next to the sun. The form oblong, irregular, pyramidal or truncated. November to December. The tree is great bearer.

BROOME PARK. Mr Knight. [E.]

Originated by Mr Knight, who describes it as, "a rather small but excellent variety." Scions were sent by him to Mr Lowell in 1832.

BROUGHAM HALL. Mr Knight. [E.]

Described by Mr Knight as "an excellent variety here." Originated by him. And sent by him to Mr Lowell in 1832.

BUFFUM. [A.]

The tree is upright and handsome. A native fruit, highly esteemed at Warren, R. I. The fruit is rather small, oval; color russetty yellow, but russetty red next the sun; melting; juice agreeable. September.

CALEBASSE FONDANTE. Nouveau Cours Complet d'Agriculture, vol. xii. p. 124.

The fruit is very much lengthened, knobby; of a uniform red color; its flesh is melting, sugary, agreeable, so far as I could judge from the fruits sent me by Van Mons. It ripens the beginning of October, and grows soft soon after.—*Bosc.*

CALEBASSE MARIANNE. Nouveau Cours Complet d'Agriculture, vol. xii. p. 128.

This fruit is very long; about three inches in its transverse diameter, rather narrow in its length; of an orange color; the stalk is short; the flesh white, melting, very sugary, and very perfumed. This is one of the best of all pears. It very much resembles in its form a calabash. The tree is thorny. This pear is figured Pl. 49, of the *Annales generales des Sciences*.—*Bosc.*

***CAPIAUMONT.**

BEURRE DE CAPIAUMONT. CASSIOMONT, erroneously.

This new variety was raised by M. Capiaumont of Mons. It was sent in 1823, by Mr Knight, to the Hon. John Lowell, and has been by him liberally distributed to all who have applied. This is the Capiaumont of the *Pom. Mag. of Lindley, of Mr Knight*. But I suspect *not of Flanders, or Thompson, or Van Mons*. The tree is of vigorous and upright growth, it comes early into bearing, and is very productive; the wood is stout, of a yellowish color; the fruit large, oblong, pyramidal, tapering to the stalk, which is situated on its summit. The eye is level with the surface; of a yellow color, tinged with fine red, or a cinnamon next the sun; the flesh yellowish, melting, buttery, very rich and high flavored. A most delicious and beautiful fruit. This excellent variety is said to be a great favorite in England, and deservedly so in the vicinity of Boston. September.

***CAPSHEAF.**

HADLEY PEAR? supposed.

A large pear of a globular form, inclining to turbinate; of an orange russet color; melting, buttery, sweet, and rich flavored. September and October. Highly esteemed where

known and cultivated. A valuable pear, introduced here by S. H. Smith, Esq. of Rhode Island.

CHAPMAN. Col. Carr. [A.]

A seedling raised from the Petre. The tree grows vigorously and bears abundantly; formed like the bergamot; the skin rough, greenish yellow; the flesh juicy, of a sprightly, fine flavor. September.

COLMAR D'AUTOMNE. Thompson. Lindley.

AUTUMN COLMAR. Lindley.

A new Flemish fruit, obtusely pyramidal, irregular; the stalk depressed; of a pale yellow or green color, thinly russeted next sun; the flesh rather gritty, but mellow, or beurre, with a sugary and slightly perfumed juice; an excellent fruit. Ripe the beginning of October. [Beginning of September?] The tree bears well.

***COLMAR SOUVERAIN.**

A new pear, stated to have been raised by Van Mons. Specimens of this fruit were sent in 1830, by Mr Prince of the Linnæan Botanic Garden, to the Massachusetts Horticultural Society. A large oblong pear, of a yellow russet color, melting, juicy, and of excellent flavor. It ripens in autumn.

CUMBERLAND. S. H. S., Esq. [A.]

This native pear is stated by Mr Smith, to be extraordinary for its size and beauty; some specimens have weighed near a pound. The color is yellow or orange, with a bright blush of crimson next the sun; the flesh is rich, juicy and melting; little inferior to the old St. Michael. The original tree was first shown to him in 1830, growing in Cumberland, Rhode Island. It is about thirty years old, apparently hardy, and free from blight. It ripens in autumn, and may be kept till into winter.

***CUSHING.** Mr Downer. [A.]

This native pear originated about forty years ago on the grounds of Col. Washington Cushing of Hingham, Massachusetts. The fruit is of medium size, oblong, contracted towards the stalk which is short; the skin smooth, light green, but brownish red next the sun; the flesh whitish, melting, and full of delicious juice, sprightly, and of first rate excellence. The tree is a great and constant bearer; and although growing in an uncultivated pasture, it has produced annually fourteen bushels of fruit. Season middle of September.

DARIMONT. Lindley. Thompson.

A new Flemish variety; middle sized; obovate; of a russetty color; melting, saccharine, musky, somewhat astringent. September.

DEARBORN. Dr Van Mons.

Described by Dr Van Mons as a new pear, which amateurs have pronounced exquisite, and which he has lately so named in honor of the Hon. H. A. S. Dearborn, president of the Massachusetts Horticultural Society.

DELICES D'HARDENPONT. Van Mons' Cat. Thom.

DELICES D'ARDENPONT. Lindley. N. Duh.

Dr Van Mons represents the Delices d'Hardenpont as very large. The New Duhamel describes as follows, the fruit, which was sent to them from Brussels.— "*Delices d'Ardenpont*. Raised by M. D'Ardenpont, amateur and proprietor near Brussels. Its height is three inches, diameter the same; stalk fifteen lines. The skin rather thick, smooth, green, but yellow at maturity; the flesh white, nearly melting; juice pleasant, sweet, and abundant. It ripens at Brussels fourth of November.

***DIX.** Mr Downer. [A.]

This very fine native pear originated in the garden of Madam Dix in Boston. It sprang from the seed about 1812. The tree is of medium vigor, the young wood is thorny. It is very productive. The fruit large, oblong; the skin rough, thick, green, but yellow at maturity, with a fine blush on the side exposed to the sun; the stalk short and situated on its summit. Flesh melting, juicy, rich, and of fine flavor, and is thought to be even superior to the St. Germain. It ripens from the middle to the last of October, and bids fair to be one of our very best autumn pears, for its beauty, fine flavor and productiveness.

***DR HUNT'S CONNECTICUT.** J. Prince, Esq.

The scions of this pear were received of Dr Hunt, of Northampton, who received it from a friend in Connecticut, without a name. "The tree is of uncommonly vigorous growth, and a great bearer. A beautiful pear, of a good size, oblong form, yellow color, with a remarkably short stalk; tolerable for the table and excellent for cooking in October." A valuable and profitable variety for extensive cultivation.

DOYENNE PANACHE. Hort. Trans. vol. vi. p. 177.

Formed like the Doyenne Gris; bright clear yellow, faintly striped with green and red, with small brown dots. The flesh is white, melting, sweet, and very agreeable.

DOYENNE SANTELETTE. Lindley. Thompson.

A new, fine, handsome pear, raised by Van Mons. Middle sized, pyramidally oblong, narrow at the crown; pale green, thinly russetted; flesh white, a little gritty; juice saccharine, with a slight musky perfume. Oct. [Sept. ?]

DE RACHINQUIN. Annales d'Horticulture. [F.] Vol. ix. No. 22, of the N. E. Farmer, inserted by the Hon H. A. S. Dearborn.

"The fruit is round, compressed; the skin rough and brown like that of the Mons. Jean; flesh very melting, buttery and sugary, and high flavored. November and December. This variety merits dissemination for the beauty of the tree, and the quality of its fruit. It grows in clusters and was produced by M. Noisette."

DOUBLE D'AUTOMNE. Lindley.

Fruit middle sized, round, in form of a Bergamot; the skin a cinnamon russet; flesh white, breaking, a little gritty, but mellow, saccharine, very excellent, with a little perfume. A very handsome, new, and excellent pear. It ripens in October. [Sept. ?]

***DUCHESS D'ANGOULEME.** [F.] Pom. Mag. Hort. Trans. and various authorities.**ANGOULEME, DUCHESS OF ANGOULEME.**

I have already, in another place, detailed the mode practised by the most distinguished cultivators of France during the last ages, in their attempts to raise improved varieties of fruit from the seed, and the disastrous results. By planting only the seeds of the very best fruits, they seem to have indulged the expectation that nature might thus be driven to infinite lengths. Nature, already exhausted, seems to have reacted—they witnessed a retrograde. But nature alone, by a great effort, has sometimes accomplished in that country, all that man by misguided zeal, and false science, had vainly attempted. Such appears to have been the case in the *Duchesse d'Angouleme*, said to have been discovered growing wild in a hedge of the Forest of Armaille near Angers, in the department of Maine and Loire. It was there found in July, 1815, on

the return of the Bourbons the second time to France. Hence its name. "A pear of first rate excellence, the finest of the late Autumn pears, it is not less remarkable and distinct from others in its appearance, in its irregular, knobby surface. It arrives at a weight very unusual in dessert pears. Specimens from the Island of Jersey have been seen weighing twentytwo ounces. The form is roundish, oblong, tapering towards the stalk, with an extremely uneven surface; the stalk and eye deeply sunk; skin dull yellow, covered with broad russet patches; the flesh rich, melting, very juicy and high flavored, with a most agreeable perfume. The trees are stated to bear very early and with certainty; it succeeds equally well on the quince stock or pear." It will ripen here about the last of October. Specimens of this fruit have been produced by the Hon. John Lowell, and S. G. Perkins, Esq. some weighing a pound, and of very first rate quality. The tree is a great bearer.

FIGUE DE NAPLES. Thompson.

Large, oblong, of a brown color, but red next the sun; beurre and excellent. The tree is vigorous. Nov. [Oct. ?]

FONDANTE VAN MONS. Thompson.

Middle sized, roundish; of a pale yellow color, juicy and excellent. November. [October ?]

FORME DE MARIE LOUISE. Mr Braddick.

This fruit was raised by Dr Van Mons, and Mr Braddick, who received the variety from him, thus describes it. The tree is hardy; it is more vigorous, the wood is stronger than the Marie Louise. The fruit is melting, it is of a larger size, and of a flavor even superior to that excellent variety. It falls early into fruit, and is an exceeding great bearer. It ripens in October, and continues in eating for six weeks. [See *Marie Louise*.] — *Loudon's Magazine*.

FORME DE DE LICES. Thompson.

Middle sized; obovate; of a yellow color, russetted; beurre and excellent. Oct.

***FOSTER.** Dr Holmes. [A.]

A native, raised by Capt. Otis Foster of Winthrop, Me., from the seed of the old St Michael, planted in 1802. The tree is very handsome, and extraordinary productive. The fruit possesses the flavor and other valuable qualities of this once favorite variety, but is larger and keeps better.

FREDERIC DE WURTEMBERG. Van Mons.

ROI DE WURTEMBERG.

A very large pear, of great excellence, raised by Van Mons, and named by him in honor of, and at the particular request of Frederic, King of Wurtemberg. Its figure is five inches long, and four in diameter; it is rounded at the base, very contracted towards the summit, which is very narrow and pointed.

***FULTON.** [A.]

The tree is a full and constant bearer. A fine native pear, roundish turbinate; of medium size; the skin dark yellow, russeted; melting, juicy, sugary, and of delicious flavor. It ripens the middle of September, and lasts a month. To have this fruit in perfection, it should be gathered a little before its maturity, and ripened in the shade. Raised from seed by Mrs Fulton of Topsham, Me. It is highly deserving of cultivation.

GENDESEIM. Lindley.

The fruit is middle sized, pyramidal, little uneven in its outline; the skin yellowish green, covered with specks and thin patches of gray russet; flesh a little gritty, but mellow, and full of a saccharine, rich, and slightly musky juice. A new Flemish pear, and a hardy and productive tree. Ripe the end of September and beginning of October. [Early in September?]

***GENESEE.** Judge Buel. [A.]

A beautiful and excellent fruit, in form like the Passe Colmar but of larger size. Flavor somewhat like the old St Michael. Sept.

***GOLDEN BEURRE OF BILBOA.**

I have adopted this name for a superior fruit, which was exhibited at the Massachusetts Horticultural Society, in October, 1831, by Mr Hooper of Marblehead, the produce of a tree imported from Bilboa in Spain. A new Spanish fruit, of medium size, very oblong, rounded at the crown, contracted towards the summit; of a fine bright golden hue, interspersed with patches of golden russet; perfectly melting, juicy, rich, and of the finest flavor. A beautiful fruit, a great bearer, and highly deserving extensive cultivation.

***GORE'S HEATHCOT.** [A.]

A native pear, a capital variety, which deserves to be

ranked with the Seckel and Bartlett; raised by Mr Heathcot on the farm of the late Gov. Gore, from the seed planted in 1812. The tree is remarkably upright and handsome in its growth; the young wood is red and thorny. The fruit is rather large; its diameter is three fourths of its length; contracted towards the stalk; of a fine yellow or straw color, tinged with red next the sun; the flesh is rich, melting, and of most excellent flavor. It is a constant bearer, and the young tree produced in 1831, five bushels of pears according to Mr Toohey, who has introduced this pear to notice. It ripens in September, and is highly deserving of cultivation.

GROSSE ANGLETERRE DE NOISETTE. [F.]

Bon Jard.

This new variety was obtained from seed by M. Noisette. It is larger and later than the Beurre d'Angleterre.

GROS DILLEN. Hort. Trans. Lindley.

DILLEN. Lindley.

A new Flemish pear, received of Dr Van Mons in 1817. "Fruit large, ovate, irregularly turbinate; about three and a half inches long, and three inches in diameter; eye flat; stalk short and thick; skin yellowish green, slightly speckled with brown; flesh white, with a slight musky flavor, and very little core. Ripe early in October, and will keep a few weeks. A fine buttery pear of the first order, and very handsome.

GRUMKOWER WINTERBIRNE. Lindley.

The fruit is of medium size; smooth, pale green. Nov. and Dec. [Oct. and Nov.]

HACON'S INCOMPARABLE. Lindley. [E.]

The fruit is middle sized, turbinate, irregular; slightly angular near the crown; the stalk stout; skin rugose; pale yellow, mixed with green, partially covered with orange russet; the flesh yellowish white, slightly gritty, but very buttery and melting; juice abundant, very saccharine, extremely rich, and possessing a high musky and perfumed flavor. A very valuable and excellent pear, raised by Mr James Gent Hacon, of Downham market, in Norfolk. The tree sprung from seed in 1814. It bears abundantly and may justly be considered one of the best pears ever raised in England. November and December.

***HARVARD. [A.]**

L'E'PERGNE, former name.

This fine native pear originated in Cambridge, Mass. The tree is of vigorous, upright, and handsome growth, and thorny. The fruit above medium size, oblong, swollen at the crown; contracted towards the stalk, which is inserted in a cavity; of a russetty yellow color, tinged next the sun with russetty red; the flesh white, juicy, melting; flavor like the combined flavors of the Seckle and Jargonelle. The tree comes slowly into bearing, but afterwards bears abundantly. It is ripe by the middle of September. Highly prized in the Boston markets.

HAZEL. Hort. Trans. vol. vii. p. 310. Lindley. [E.]

A small fruit, of a yellowish color and speckled; of an oval, turbinate form; the flesh white, juicy and pleasant. Season end of October to end of November. A Scotch fruit, and said to be extensively cultivated in Scotland for its good quality and abundant produce.

HENRI QUATRE. Lindley. Thompson. Van Mons.

HENRY FOURTH. Ibid.

A new Flemish pear, raised by M. Witzhumb. The tree is a good bearer. Middle sized, pyramidal, oblique at the crown; pale yellow mixed with green, but orange brown next the sun; flesh pale yellow, a little gritty, but very tender and melting; juice abundant, highly saccharine, with a slight musky perfume. A very excellent pear; it ripens the end of September and will keep a few weeks. [Early in September?]

HENRI VAN MONS. Dr Van Mons.

New England Farmer, vol. x. No. 7. Inserted by the Hon. H. A. S. Dearborn, from the *Revue des Revues*; written for that periodical, by Dr Van Mons.

The fruit is very large; contracted in proportion to its length, and swollen about one third of its height; but the largest fruit often assumes a cylindrical form. The skin is smooth; of a greenish yellow, but brilliant red next the sun. The flesh is tender, buttery, sweet, slightly mingled with acid, which renders it very agreeable. It is an excellent autumn fruit, and its true pear flavor should make it in great demand. Named in honor M. Henri Van Mons of Brussels.'

JOHONNOT. [A.]

Originated by George S. Johonnot, Esq. of Salem. It first bore fruit in 1823; a medium sized fruit of irregular form; the stalk very short and thick; the skin very thin, of a dull yellowish brown hue; of good flavor. September.

LA COLOMA. Van Mons. Nouveau Cours Complet d'Agriculture, vol. VII. p. 127.

The fruit is medium sized, oval, but swelled in the middle; the color yellowish green, but yellow at maturity, which is in November; flesh melting, perfumed, and very agreeable, judging from the specimens of fruit sent us by Van Mons from Brussels.—*Bosc.*

L'INCOMMUNICABLE. Lindley.

INCOMMUNICABLE.

The fruit is medium sized, oblong, pyramidal, compressed towards the stalk, which is stout and short; of a grass green color; flesh yellowish white, a little gritty but melting; juice saccharine, with a slight musky perfume. A new Flemish variety; it bears well and regularly, as a standard at Chiswick. Ripe middle to the end of Oct.

LA VANSTALLE. Van Mons. Nouv. Cours Complet.

The fruit is perfectly pyramidal; high colored with red; of a medium size; the flesh becomes insipid, and finally soft; it keeps till the middle of October. I did not find this fruit so excellent; it is however, better than the Doyenne, [St Michael.]—*Bosc.*

LODGE. Col. Carr. [A.]

A new seedling raised in the neighborhood of Philadelphia. A tolerably large pear, of a brown color; melting, juicy, and of delicious flavor; thought by some to be superior to the Seckel. It ripens early, but keeps well; and is thought to be highly deserving of general cultivation.

LOUISE BONNE DE JERSEY. Thompson.

Large pyramidal; color brownish green, but next the sun brownish red. Buerre and excellent. Superior to the Louise Bonne. October. [September?]

MARIE LOUISE. Pom. Mag. Van Mons. Thompson.

MARIE CHRETIEN. Thomson.

A new and most superior variety, originated by the Abbe Duquesne. The tree bears abundantly. The fruit is oblong, tapering towards both ends. The size varies from medium to large; stalk an inch long; skin nearly smooth,

yellowish green, interspersed with patches of cinnamon colored russet; the flesh white, exceeding juicy, melting, buttery, and rich. It ripens in October and keeps till November. [September. October, here?] The English writers are evidently mistaken, who have confounded this fruit with the *Forme de Marie Louise*; as the last was so called *after* the Marie Louise, from a similitude of form. In Dr Van Mons' catalogue for 1823, there are more than one unnamed sorts called, *Forme de Marie Louise*—more than one *Forme de Napoleon*—and at least twenty unnamed varieties called *Forme de Doyonne*. See *Forme de Marie Louise*. Scions of this variety were sent by Mr Knight in 1823, to Mr Lowell.

***NAPOLEON.** Pom. Mag. Van Mons.

ME'DAILLE. Hort. Soc. Cat.

SAUVAGEON LIART of some, according to Van Mons.

CHARLES D'AUTRICHE, and SUCRE DORE. Thompson.

This new and excellent variety was raised by M. Liart. Mr Braddick has stated that he found the Napoleon in every good collection on the continent; also the Marie Louise. This variety was sent in 1823, by Mr Knight, to the Hon. John Lowell. The fruit is large, in form of the Colmar, contracted in the middle; stalk half an inch long, slightly depressed; the skin smooth, bright green, but at maturity pale green; flesh very melting, with a most unusual abundance of rich agreeable juice. It ripens with us in September. This variety is stated to be a great bearer, and to succeed equally upon the pear or quince stock.

***NAUMKEAG.** Mr Manning. [A.]

This pear was lately originated in Salem, by George Johonnot, Esq., and derives its title from the ancient Indian name of that town. The fruit is nearly round, or roundish oblong; the stalk long; of a yellowish russet color; a valuable pear, and a great bearer. Ripe in autumn.

NOIR GRAIN. Bon Jard.

A pear of medium size, extremely productive and highly esteemed in Flanders. Ripe in September.

PARMENTIER. Thompson.

Middle sized, obovate, striped with bright red buerre and excellent. October. [September?]

PITFORD PEAR. Mr Knight. [E.]

'A rich melting pear, season November.' Originated by Mr Knight, and sent by him in 1832, to Mr Lowell.

***PRINCESSE D'ORANGE.** Pom. Mag.

PRINCESSE CONQUETTE. Thompson.

The fruit is roundish turbinate, the size of the White Doyenne [St Michael;] the skin bright reddish orange russet; flesh yellowish white, sugary and rich; in some seasons perfectly melting, but occasionally a little gritty. From its great beauty, as well as the good quality of the fruit, this variety is highly recommended to notice, as a valuable autumn pear, ripening in October. Raised by the Comte de Coloma in 1802. Fine with Mr Manning.

PRINCE'S SAINT GERMAIN. [A.]

Raised by William Prince, Esq., proprietor of the Lin. Botanical Garden, Flushing, from the St Michael and St. Germain. The fruit is rather large, oblong, regular in form; yellow, covered with thin russet, melting and of excellent flavor. It ripens in autumn and will keep till winter. The tree is said to bear well.

POIRE D'ANANAS. London.

One account describes the Poire d'Anans as of medium size, very handsome, melting, with a fine pine-apple flavor, [hence its name,] ripening in November, and considered in Belgium as one of their very best kinds.

POIRE DE LOUVAINE. Lindley.

The fruit is middle sized, pyramidal, uneven on its surface; of a dull green color, mixed with yellow, and spots of russet; the flesh very tender, slightly gritty, and full of a rich, very saccharine, musky juice. A very excellent pear, and hardy tree; it highly deserves cultivation. Ripe the beginning of October, and fine to the end. In our climate this fruit may ripen a month earlier.

POIRE NEILL. Lindley.

This fruit is sometimes nearly four inches long, and three and a half inches in diameter; pyramidally turbinate, tapering to the stalk; sometimes obliquely formed; the stalk is short and obliquely inserted; the skin pale yellow, intermixed with green, and mottled with thin gray russet; flesh white, a little gritty, but very soft and mellow, abounding with a saccharine and slightly musky juice. A very fine

and handsome new pear from Flanders, so named in honor of Mr Neill. Ripe the beginning of October, and good to the end. [September?] The tree is a great bearer.

RAYMOND. Mr Manning. [A.]

A middle sized pear, a little oblong, contracting towards the stalk; of a greenish yellow color, and good flavor. It is expected this may prove a valuable fruit. Raised by Dr Joseph Wight, of Raymond, Me.

REINE DES POIRES. Thompson.

Large, obtusely pyramidal; color yellowish green, but red next the sun; flesh breaking and good. October. [September?] A great bearer. It does not, however, merit its name.

RICHE DE POUILLE. Lindley. Lond. Hort. Trans.

RICHE D'APPOIE.

This pear resembles the St Germain in size and shape. It is large, oblong, the eye prominent; tapering to the stalk, which is rather thick and long; the skin clear citron yellow, covered with numerous asperities, and rough like the orange or lemon, and tinged with scarlet next the sun; the flesh is white, melting, not perfumed, but sweet and very pleasant. A new variety, ripening late in autumn or winter; it succeeds on the quince or pear.

***SAINT GHISLAIN.**

This variety was raised in Belgium by M. Dorlain. A very superior fruit, of medium size; pyramidal or turbinate in form; the stalk on its summit, and fleshy; pale green, changing to pale yellow; flesh juicy, beurre, rich, saccharine, peculiar and very delicious. Ripe from the middle of Sept. to end of Oct. Introduced by S. G. Perkins, Esq.

***SECKEL.** [A.]

A most delicious pear, of a size varying from small to medium; of an obovate form; the color varying from yellowish to brownish russet, but generally red next the sun; of a melting, spicy, and most extraordinary rich and delicious flavor. In this respect, it is, by some, supposed to exceed any other native fruit. It ripens the middle of September, and lasts till the middle of October. The tree is of moderate growth and extraordinary productive; the fruit grows in clusters, and is recommended as indispensable in every good collection. Dr Hosack has stated that this variety was first introduced to notice near Phila-

delphia about 70 years ago. It was found either on the grounds of Mr Seckel or Mr Weiss.

SERRURIER D'AUTOMNE. Annales d'Horticulture.

New England Farmer, Vol. ix. No. 22, inserted by the Hon. H. A. S. Dearborn.

"M. Van Mons says the tree is tall and majestic; the leaves small, elongated and appositely formed." The fruit is very large, oblong, obtuse at both ends; the skin of a delicate green, it becomes yellow at maturity. The flesh is white, tender, melting, full of a very abundant sugary juice. The epoch of its maturity is towards the end of October, and it may be preserved three weeks. Produced by M. Van Mons.

***SIEULLE.** Bon Jard. 1828. [F.]

Raised by M. Sieulle, at the seat of the Duc de Choiseul at Praslin. It first bore fruit in 1815. The fruit is of medium size, globular form, flattened at the ends, but swollen towards the base, and slightly red next the sun; flesh half melting; juice sweet, rich, abundant, and agreeable. It ripens in October and November. The tree is vigorous and productive.

STRIPED BON CHRETIEN. N. Duh.

BON CHRETIEN PANACHE'. Ib. Pl. 115.

Introduced by M. Vanieville, from Metz, in 1810. The tree comes early into bearing, the young wood is striped; the fruit is very large and formed like the winter Bon Chretien, irregularly striped with yellow on a green foundation; the flesh almost melting, sweet, and very agreeable in its raw state. This interesting species merits to be extensively multiplied.

***SUMMER FRANCREAL.** Pom. Mag. p. 106.

GROS MICET D'E'TE'. Ib. FRANCREAL D'E'TE'. Diel's Pom.

FONDANTE. Knoop's Pom. FRANCE CANNEL. Ib.

PREBLE'S BEURRE'?

Rather large, turbinate, pale yellowish green; the stalk short and thick; the flesh white, firm, juicy, buttery, melting, rich and excellent. The tree is a great bearer. Sept. [Aug?]. The trees of the last synonyme grow compact; the leaves are downy beneath. A fine productive variety.

SUPER FONDANTE. Thompson.

Middle sized; obovate; of a pale yellow color; beurre and excellent. It resembles the White Doyenne. Oct. [September?]

THOMPSON'S. Thompson.

Middle sized, obovate; of a pale yellow color, *beurre* and excellent, with the flavor of the *Passe Colmar*. Nov. [Oct. ?]

TILLINGTON. Lond. Hort. Trans. [E.]

A new variety, raised by Mr Knight, and sent by him in 1822 to the Hon. John Lowell. Middle sized, turbinate, rounded at the crown; the stalk short, fleshy; color dull brick dust red next the sun, the whole russeted. The flesh white, nearly *beurre*, a little gritty; sweet, rich, though not very juicy. November.

***URBANISTE.**

BEURRE DU ROI, of some.

A new and most superior variety raised by the Comte de Coloma of Malines. The fruit is rather large and oblong; pyramidally ovate; very regular; the eye slightly depressed; the stalk an inch long, moderately and obliquely sunk; color pale green, inclining to yellow, small gray patches of russet dispersed over its surface. The flesh white, but reddish yellow next the core, which is large and a little gritty; it is quite melting, juicy, and very sweet, with a little perfume. This variety was sent by Mr Knight to the Hon. John Lowell in 1823, and has been by him liberally disseminated. It proves, with us, one of the very finest and most valuable of autumn pears. It ripens the middle of September and keeps till December. A tree imported from France, in 1822, by John Prince, Esq. of Roxbury, under the name of *Beurre du Roi*, and on a quince stock, has proved a most excellent bearer, and a very first rate fruit. The tree, the leaf, and the fruit, are evidence that it is no other than the *Urbaniste*; its legitimate title having been suppressed in France; and a new one usurped in honor of Charles X.

***WASHINGTON.** [A.]

A medium sized native pear, of an oblong form, much compressed towards the stalk; very melting and of delicious flavor. Thus it is described by Mrs Griffith of Charleshope, N. J. who has sent this variety to Mr Parsons. Autumn. The fruit produced in 1834 by Mr Lowell and Mr Manning is fine.

***WILKINSON.** S. H. S., Esq. Mr Downer.

This new and fine native pear, originated in Cumberland,

R. I., on the farm of Jeremiah Wilkinson, brother to the celebrated Jemima Wilkinson, and was introduced here by Stephen H. Smith, Esq. of Providence, in 1829, and was so named by the Committee of the Massachusetts Horticultural Society. The tree is healthy and a good and constant bearer; the size and form are those of the St Michael; the skin dark yellow, with a brownish blush next the sun; the flesh is whitish, melting, flavor very peculiar, with a delicious sugary juice, sprightly and pleasant; having distinctly the flavor of the rose and aroma. Season October and November.

WHITEFIELD. Thompson.

Middle sized, oblong; of a brown or yellow color; beurre and excellent. The tree is a great bearer. Nov. [October?]

WILLIAMS. [A.]

This new variety originated on the farm of Aaron Davis Williams, Esq., in Roxbury, Mass., and is stated to be a good bearer. It is rather below the medium size; turbinate; the color yellow with a deep blush next the sun; it is melting, juicy, and exceeding fine flavored. The tree is stated to be a good bearer. September.

WILLIAMS' BON CHRETIEN. [E.]

BARTLETT.

The fruit is large irregular, pyramidal, or truncated. The eye on the summit, the stalk gross and fleshy; skin at maturity, yellowish, mixed with russet brown, tinged with red next the sun. Flesh whitish, tender, delicate; juice sweet, abundant, and agreeably perfumed. Sept. The *Bartlett Pear* proves identical with this, which see.

WORMSLEY GRANGE. Mr Knight. Thompson. [E.]

A new variety, originated by Mr Knight, and sent by him in 1823 to the Hon. John Lowell. Middle sized, oblong, of a yellow brown color, beurre and excellent. Oct. Mr Knight describes it as a first rate variety, requiring to be gathered before it is quite ripe. The lapse of ten years has not yet satisfied us that this English variety will answer in our warmer climate.

SECTION III.

WINTER FRUIT.

BEURRE' D'AREMBERG. Pom. Mag. Thompson.

Loudon. Knight. Annales d'Horticulture.

POIRE D'AREMBERG.

DUC D'AREMBERG.

COLMAR DESCHAMPS.

} According to the Pom. Mag.

BEURRE' DES ORPHELINES, of Deschamps.

The English writers especially, speak of this new Flemish pear as the very best of all known,—“*The prince of pears.*”—One of the greatest bearers, coming early into bearing, and keeping well. It has been confounded with the Gloux Morceau, another fine pear, but larger. Mr Knight sent the variety in 1822 to the Hon. John Lowell, and it has been by him liberally disseminated. It was raised by the Abbe Deschamps, in the garden of the Hospice des Orphelins at Enghein. Deschamps at first called it *Beurre des Orphelins*, and M. Van Mons soon after named it *Beurre D'Hardenpont*, and finally *Beurre D'Aremberg*. The Pomological Magazine thus describes the tree and its fruit. Wood deep yellowish brown, sprinkled with gray spots; leaves middle sized, ovate oblong, of a rich dark green color. The fruit is large, turbinate; the skin of a delicate pale green, dotted with russet, which becomes a deeper yellow at maturity; the flesh whitish, fine, very juicy, perfectly melting, without any grittiness, and of a very extraordinary rich, sweet, high flavored quality. It will keep till March, and is truly characterized in the Horticultural Transactions, as deserving to be placed at the head of all pears in cultivation. It is a great bearer either on a quince, or as a standard.

BEURRE' DE BOLWILLER. Thompson.

Middle sized, obovate; of a beautiful green color, beurre and good. December and January.

***BEURRE' DIEL.** Pom. Mag.

DOROTHEE' ROYALE of Van Mons, according to Lindley.

BEURRE' D'YELLE. Lind. POIRE DE MELON. Ib.

BEURRE' ROYALE. Pom. Mag. DIEL'S BUTTERBIEKE.

GEOS DILLEN, according to Thompson.

This noble pear was raised by Van Mons and so named in honor of Dr Augustus Frederic Adrian Diel. Its great

merit, independent of its excellence, is its fertility. It is of the first rank among dessert pears. The tree is of vigorous growth. The fruit when in perfection is four inches long, and three inches broad; it is much swollen a little above the middle, going off to the eye either abruptly or gradually, and tapering straight to the stalk, without any contraction of the figure, which is much like the *Bon Chretien*, but without the protuberances. The skin at maturity is bright orange, with little trace of russet; its dots surrounded with red; the eye in a deep cavity, surrounded by knobs; the stalk strong, one and a half inches long, in a deep narrow cavity; the flesh clear white, a little gritty towards the core, but perfectly tender, melting, juicy, with a delicious, rich, saccharine, aromatic flavor, without any perceptible acid; the core small, the seeds usually abortive. This noble fruit, from the specimens here exhibited, bids fair to become one of our most valuable of all varieties.

BEURRE' RANCE, of Van Mons. Of the French.
 Lond. Hort. Trans. Pom. Mag.

HARDENPONT DU PRINTEMPS. BEURRE' ÉPINE.

This new variety was raised at Mons, by the late Counsellor Hardenpont. It is described by Dr Van Mons, as being the best of the late pears, keeping till May. Mr Knight, in 1823, sent this variety to the Hon. John Lowell. The tree is vigorous, and a good bearer after a few years; the growth is straggling, the shoots sometimes growing pendulous. The fruit is middle sized, oblong, tapering to the stalk, which is long and slender; the skin deep green; flesh green, melting, having a delicious, rich flavor, with very little acid; it shrivels in ripening.

BEURRE' WITZHUMB. Van Mons. *Nouveau Cours Complet d'Agriculture*, vol. xii. p. 126.

The fruit is oval, knobby, three and a half inches in diameter; skin rough, green, brownish red or dark brown next the sun; flesh white, semi-transparent, melting, perfumed. It ripens in December. This beautiful and excellent pear is figured Pl. 105 of the *Annales generales des Sciences*. — *Bosc*.

BERGAMOTTE PENTECOTE. Van Mons. *Nouv.*

Cours Comp. *Bosc*.

NOT THE EASTER BEURRE'.

The fruit is very large, three inches in its transverse di-

ameter, and more than a pound and a half in weight; swollen; a little striped; green, washed with dusky fawn, red next the sun, and speckled with brown; umbilicate; stalk short and thick; flesh white, green or yellow, melting, slightly acid. It is sometimes preserved eight months.

*BEZY-VAET. Dr Van Mons. New England Farmer, vol. x. No. 7. Extracted from an article, written by Dr Van Mons in the *Revue des Revues*; inserted by the Hon. H. A. S. Dearborn.

BEZY DE SAINT VAEST, according to Dr Van Mons.

"The Bezy-Vaet, according to tradition and from the name which it bears, was probably obtained by the late Abbe Saint Vaest, or had been disseminated by him. The fruit belongs to the sub-species of *Rousselets*; its size and form are those of the Colmar; ground deep green, blotched with purple, and stained in spots of rusty red; flesh both melting and buttery, slightly yellow, it abounds in sugar, and exhales a perfume which cannot be compared to the aroma of any other fruit. The period of its maturity is December and January, but it can be prolonged by gathering the fruit fifteen days earlier than usual. It is superfluous to add that it is worthy of being received by amateurs. Specimens of superior fruit of this name, were exhibited by Mr Downer, Nov. 1834.

CARDINALE. N. Duh. Pl. 62. [F.]

POIRE D'AMIRAL, of M. Hervy. ADMIRAL.

A superb, oblong pear, of a pyramidal form, with a well rounded base; yellow in the shade, but beautiful red next the sun; flesh white, half melting, coarse grained, very juicy, sweet and agreeable. It keeps till March; it is eminently beautiful, and deserves to be better known.

CHAPTAL. N. Duh. Pl. 333. [F.]

This new pear, dedicated to Comte Chaptal, Minister of the Interior, was obtained by M. Hervy in 1800. The tree resembles a wild pear; the fruit is very large, turbinate, swollen; skin smooth, green, but at maturity yellow, with a slight blush next the sun. The flesh is breaking, but Calvel has described it as half melting; the juice abundant, sweet, slightly acid, and perfumed. This handsome pear keeps till April and May; it is excellent cooked.

COLMAR DEWEZ. Loudon, from Bull. Univ. 1825.

This pear lately originated in the vicinity of Brussels, is said to contain a rare assemblage of extraordinary qualities;

the flesh is white, tender, and exquisitely melting; the juice abundant, mild, and of an elevated, agreeable perfume, equal to the Hardenpont d'Hiver, improperly called Beurre d'Hiver.

COLMAR SABINE. Van Mons. *Nouv. Cours Complet d'Agriculture*, vol. xii. p. 133.

The fruit is oval, oblong, tapering to the stalk. Its diameter two and a half inches; of medium size; the color beautiful green, dotted with brown; stalk long, the eye rather deep; the flesh white, buttery, very sugary, not at all musky. It does not ripen till spring. Figured vol. iii. Pl. 30, of the *Annales generales des Sciences Physiques*. — *Bosc*.

COLMAR VAN MONS. *Nouveau Cours Complet d'Agriculture*, vol. xii. p. 133.

Fruit pyramidal, yellow, with fawn colored points; of medium size; the flesh half breaking, sugary, very agreeable; it ripens in January, and will keep two years, according to Van Mons. I have eaten of this fruit. The tree is extremely productive. — *Bosc*.

DOWNTON. Thompson. [E.]

Middle sized; pyramidal; color yellow and brown; juicy and excellent. January and February. A great bearer. Originated by Mr Knight, and sent by him in 1823 to the Hon. J. Lowell.

DUCHESSE DE MARS. Chev. Parmentier.

A large melting pear of good flavor, ripening in March.

The Duchesse de Mars which Mr Thompson describes as of a yellow brown color, middle size, obovate, beurre and excellent, may be wrong, as it ripens not in March, but November.

***EASTER BEURRE.** Pom. Mag.

BERGAMOTTE DE LA PENTECOTE, but not of Parmentier or Dr Van Mons.

BEZI CHAUMONTELLE TRES GROS, of M. Stoffels.

BEURRE D'HIVER DE BRUKELLES, of the Taschenbuch.

DOYENNE D'HIVER, of some according to the Pom. Mag.

CANNING, according to Thomson. SEIGNEUR D'HIVER, lb.

DOYENNE D'HIVER, lb. DOYENNE DE PRINTEMPS, lb. PHILIPPE DE PACQUES, lb.

This fine new fruit probably originated in Flanders. It is not to be confounded with the *Easter Bergamotte*, a good

but inferior fruit. "Of all the very late keeping pears, this is decidedly the best [*for England.*] The fruit is large, roundish oblong, broadest towards the eye; stalk short, thick, deeply inserted; green, but yellow at maturity, with specks of russet brown; the flesh yellowish white, perfectly buttery and melting, and extremely high flavored. It is a most profuse bearer on a quince stock. It ripens from November to May. This variety bore abundantly at Mr Manning's in 1833, and promises to become one of our finest winter fruits."

FLEMISH BON CHRETIEN. Lindley.

BON CHRETIEN TURC. Thomp. BON CHRETIEN DE NOUVELLE, lb. BON CHRETIEN DE VERNOT, lb.

Very large, its transverse diameter three inches and an half; oblong, turbinate, yellow at maturity, but russetted next the sun; flesh yellowish white, breaking, but mellow at maturity; juice saccharine, slightly musky, perfumed. A very fine new Flemish pear; it succeeds on the quince. November to January. But Mr Thompson describes it otherwise, as obovate, crisp, good for cooking, large, a great bearer.

FONDANTE DU BOIS. Thompson.

Middle size; obovate; color green and yellow; juicy and excellent. It resembles the Passe Colmar. December to February.

GARNONS. Thompson.

A large fruit, of an oblong form; of a greenish yellow color; beurre and excellent. January.

GLORIA. Mr Knight.

COLMAR D'HIVER. Former name.

A name implying all that is excellent. A variety sent by Mr Knight in 1823 to the Hon. John Lowell. He thus described it—"Shape varying from nearly globular to pear shaped; color yellowish green. A melting pear of first rate excellence and very productive. Season January." Specimens of this fruit, perfect in form and exterior, were produced by Mr Parsons in 1831, but it cannot yet be recommended, except for further trial.

GLOUT MORCEAU. Hort. Trans. Lindley. Knight.

KRON PRINZ FERDINAND, according to Thompson.

BEURRE HARDENPONT, lb. HARDENPONT D'HIVER, lb.

Mr Knight describes the *Glout Morceau*, as "a very large

Belgic variety of great excellence." Mr Thompson adds to all this, that "it is a good bearer, hangs long on the tree, which is hardy, an excellent beurre pear." Large specimens measure four inches long, and three and a half in diameter. Much like the D'Arenberg in form, but larger, more oval, not so turbinate; the stalk an inch long and rather deeply inserted; the eye deep in an uneven hollow; the skin is pale, dull olive green, inclining to yellow; covered with russetty specks, and round the stalk russetty blotches. Flesh whitish, firm, very juicy, but a little gritty at the core. A beautiful and fine variety. Ripe in November and will keep till March.

GRANDE BRETAGNE DOREE D'HIVER. Thom.

A variety procured by Mr Braddick of M. Stoffels of Malines and pronounced excellent by him and Mr Loudon. Mr Thompson describes it as a medium sized fruit, russetted, and russetty red next the sun; pyramidal; beurre and excellent. October to December.

ICKWORTH. Mr Knight. [E.]

"Melting, rich, rose flavored." March and April. This new pear was originated by Mr Knight, and scions were sent by him in February, 1823, to Mr Lowell and the Massachusetts Agricultural Society.

JOSEPHINE. Chev. Parmentier.

JAMINETTE, of some, according to Van Mons.

This new Flemish pear is of large size, flesh melting, juice sugared, and flavor excellent. It ripens in winter.

LA FOURCROY. Van Mons. *Nouveau Cours Complet d'Agriculture*, vol. XII. p. 132.

MERVEILLE DE LA NATURE.

Fruit oval, two and a half inches in its transverse diameter; skin yellow, spotted; stalk strong; eye little sunk; flesh yellowish white at maturity, melting, slightly acid, excellent. It ripens in January. Figured Pl. 86, of the *Annales generales des Sciences*. Raised by Van Mons.

LEWIS. Mr Downer. [A.]

This valuable pear originated on the farm of Mr John Lewis in Roxbury, Mass. The size is medium, form somewhat globular; the stalk long; the skin dark green and coarse; the flesh whitish, very melting, juicy, and excellent. It ripens by the middle of November, and may be kept till February and March. The tree when loaded

droops like the willow; this new and excellent pear is a very great and constant bearer; it is productive to a fault, and possesses the valuable property of hanging on the tree to a very late period; and is highly deserving of cultivation. This fruit sells very high in winter in the market.

L'OKEN D'HIVER. Van Mons. Nouveau Cours Complet d'Agriculture, vol. xii. p. 132.

Fruit oval, a little lengthened; its transverse diameter five inches; stalk short; eye sunk in a cavity; skin of a clear yellow, washed with fawn color; flesh white, melting, pleasant, perfumed, excellent. It ripens in March. Figured Pl. 74, of the *Annales generales des Sciences*.—Bosc.

LOWELL. Mr. Knight. [E.]

A new pear raised by Mr Knight, and so named by him for the Hon. John Lowell to whom the tree was sent in 1823. Mr Knight observes "Our climate is hardly warm enough for it, but in yours I think it will prove excellent, and a very productive variety."

MONARCH. Thompson. Mr Knight. [E.]

A new pear, middle sized; obovate; of a yellow brown color; beurre and excellent. A good bearer. January. Originated by Mr Knight, who sent it in 1832 to Mr Lowell and the Mass. Agri. Soc. The *Monarch*, says Mr Knight, "in my estimation, and that of a great many others, is without a rival as a dessert fruit, of a high musky flavor.—The *Monarch* grows so fast, and bears so well, that I am planting it for perry, convinced it will make a very fine liquor. This and the *Althorpe Crassanne*, will not be excelled by any other varieties in your climate; both grow rapidly and bear abundantly."

NE PLUS MEURIS. Thompson.

A fruit of medium size; roundish; of a brown color, russetted; beurre and excellent. November to March. One of the best of late pears.

***NEWTOWN VIRGALIEU.** M. [A.]

The tree grows very crooked, bending by the weight of its fruit. A large pear of a yellow color, with a very short stalk. A middling fruit only for the table, but an excellent baking pear; a most extraordinary bearer, and recommended for extensive cultivation.

***PASSE COLMAR.**

FONDANTE DE PANISEL, } Of Van Mons, according Pom. Mag.
 PASSE COLMAR EPINEUSE, }
 BEURRE COLMAR DIT PRECEL, Hort. Soc. Cat.
 FONDANTE DE MONS, Thompson. D'ANANAS, Ib.
 COLMAR HARDENPONT, Ib. MAROTTE SUCRE JAUNE.

A most superior new pear raised by counsellor Hardenpont at Mons. This variety was sent by Mr Knight to the Hon. John Lowell in 1823 and has been by him liberally disseminated. The fruit is middle sized, conical, flattened at the crown; the stalk an inch long, moderately thick, slightly sunk; the skin at maturity yellowish sprinkled with russet, stained with red next the sun; the flesh yellowish, melting, beurre, juicy, very rich and most excellent. With us it proves a most delicious variety, and very extraordinary productive. John Prince, Esq. of Roxbury exhibited in 1830 a branch two feet in length containing thirty one pears and weighing nine and a half pounds. It ripens in November and may be preserved till February, and is recommended for extensive cultivation.

PENGETHLY. Mr Knight, [E.]

"A large dark brown pear, quite new and now ripe." This pear was originated by Mr Knight, and scions were sent by him in February, 1832, to Mr Lowell and the Massachusetts Agricultural Society.

PETRE'. [A.] Philad. Hort. Trans. Col. Carr.

This native fruit is described as, "large, fair, melting, and of delicious flavor; it ripens in September, and keeps till late in winter." "The tree was planted by the elder John Bartram, in 1735, and has been in full bearing seventy years, and has probably yielded four hundred bushels of fruit, which has frequently sold for \$5 a bushel."

PRESENT DE MALINES. Braddick. Loudon.

Rather large; somewhat Bon Chretien shaped, smooth and of a beautiful yellow throughout; a melting pear of a rich and musky flavor, and excellent quality. The tree is healthy, of vigorous growth, falls early into fruit, and promises to bear abundantly, and is a good fruit for keeping. Raised by the Count de Coloma of Malines.

PRINCE DE PRINTEMPS. Braddick. Loudon.

A new Flemish variety procured by Mr Braddick of M. Stoffels of Malines in 1819. Below medium size, turbi-

nate, of a green color, melting, sugary and excellent. It keeps till March.

ROI DE ROME. Chev. Parmentier. Van Mons.

A pear of middle size, melting, and of good flavor. It ripens in December and January. Originated in Flanders by the Abbe Duquesne.

ROUSELENCH. Thompson. [E.]

Large, oblong; of a pale green color; beurre and excellent. January and February. A great bearer. Raised by Mr Knight and sent by him in 1823, to the Hon. John Lowell.

SABINE, of the French. Thompson.

POIRE D'AUSTRASIE. JAMINETTE. COLMAR JAMINETTE. Syms of Thompson.

Medium sized, obovate; color green and brown; beurre, and good. A good bearer and nearly first rate, November to January.

SURPASSE ST GERMAIN Braddick. Van Mons.

A new Flemish pear raised by Dr Van Mons; rather irregular; oblong; rounded at the crown, tapering towards the stalk; of a green and brown color, and according to Mr Braddick an excellent winter fruit.

* **SYLVANGE VERTE.** M. Pierard. Hon. J. Lowell.

The green sylvange is a most superior pear, it originated at the village of Sylvange, near Verdun, in France, at what period is uncertain. This variety was sent by Mr Knight in 1823 to the Hon. John Lowell, who has proved it, and agrees with M. Pierard that it is one of the very best of pears, and a most exuberant bearer, even to a fault. Some of the specimens produced by Mr Lowell and Mr Parsons of Brighton have weighed eleven and thirteen ounces—this variety has been by them disseminated, with their wonted liberality. This excellent pear fully corresponds with the description of M. Pierard. The fruit is rather large, varying in form, irregular in its outline, swollen towards the middle, flattened at the crown, rounded towards the stalk, or terminates by a very blunt point; of a bright green color in the shade, dark green next the sun; the whole skin rough, with dark spots or specks. The stalk is short, slender, obliquely inserted; the eye small, and but slightly depressed in a knobby cavity. The flesh is greenish near the skin, white in the

centre, of a soft, saccharine, and peculiarly agreeable flavor. It ripens in October and will keep till into winter. M. Pierard adds that it requires a sheltered situation, and not a strong soil.

VICOMTE DE SPOELBERCH. Van Mons.

Extract from an article written by Dr Van Mons in the *Revue des Revues*, inserted by the Hon. H. A. S. Dearborn. The size varies according to the quantity produced. Its form is nearly spherical, swollen and flattened near the eye, contracted towards the stalk. The skin is thick and rough, of a brownish red next the sun, with purple spots; on the opposite side deep green. The flesh is buttery, saccharine, full of agreeable and sprightly juice, and very high flavored. This excellent pear is decidedly a winter fruit, and sometimes keeps till spring. It was raised by Dr Van Mons.

WINTER CRASSANNE. Mr Thompson. [E.]

A new pear raised by Mr Knight, and sent by him in 1832, to the Hon. John Lowell and the Massachusetts Agricultural Society. Very large, turbinate of a greenish yellow and brown color; buerre and excellent. January.

WINTER NELIS. Pom. Mag.

LA BONNE MALINES, Mr Knight. Pom. Mag. London Hort. Trans.

NELIS D'HIVER. BONNE DE MALINES, Hort. Trans.

A new variety raised by M. Nelis of Malines. Sent by Mr Knight in 1823, to the Hon. John Lowell. Represented as a most excellent winter pear. Rather above the middle size, obovate, obtuse at the stalk, which is thick and over an inch long; the skin yellowish, sometimes covered with russet brown; the flesh yellowish, melting, buttery, juicy, very rich and high flavored. Equal to the Chaumontelle. None call it a great bearer.

CULTIVATION.

THE pear tree is raised from seed or from suckers. The seeds should be sown in the same manner as directed for apples; and as they incline to grow with a tap root,

some recommend that they should be transplanted into beds when but two inches in height, to force them to throw out lateral roots : others defer this operation until they are a year old, when they are taken up, deprived of their tap roots, and transplanted into beds, where they are suffered to remain a year or two ; after which they are again transplanted to the nursery rows, and their management afterwards, is not unlike that of apples.

The pear tree in the climate of New England is not so easily nurtured from the seed as the apple ; their long tap roots expose them to be thrown out of the earth by the frosts of winter. But afterwards they resist the most severe cold.

GRAFTING AND INOCULATING.—The most durable stocks for grafting and inoculating are the pear. “Dubreuil,” says Loudon, “recommends the quince stock for clayey and light soils, and the free stock pear for chalky and silecious soils.” He further informs us that “grafted on the white thorn, [which like the quince renders them dwarfish,] pears come very early into bearing, continue prolific, and in respect to soil, will thrive well on a strong clay ; which is unsuitable to those on quinces and wildings. But they are supposed to have an unfavorable influence on the fruit, in rendering it small and hard.” By grafting or inoculating on the quince, pear trees come much sooner into bearing, their productiveness is increased, the good quality of the fruit is not changed, but the size, and longevity of the tree is diminished. Such pear trees are termed dwarfs. This mode is extensively adopted in France ; but all kinds of pears will not grow on the quince stock. Those dwarfs trained in the form of a distaff, are called in that country *Quenouilles* ; for the mode of training which, and also for a new mode of dwarfing the pear, see the former part of this work.

SOIL. The pear flourishes in rich soils and gentle declivities ; they will succeed in the most common, deep, dry soil, and throw out numerous lateral shoots. But they do not flourish in moist situations ; in a cold, strong, moist, soil, with a clayey subsoil, they throw out very few lateral roots, the fruit is not so fair, nor of so good a quality, and the trees are not so long lived. They will even grow in poor soils and in the clefts of rocks.

With respect to distance, the same observations to be

found under the head of *Apple*, may here apply. But the pear from its pyramidal form, requires much less space. Twenty feet in suitable soils is a good distance; but less answers in poorer soils. But *Quenouilles*, are said to answer even at four or five feet distance, producing large crops; and as they occupy but little space, and come suddenly into bearing, they are for profit, said to be extensively cultivated in France. Pears produced on quince stocks are said to be much improved in flavor; all but winter fruit, which in some cases, is said to become worse.

The young luxuriant shoots of the pear tree, by being bent downwards, generally produced the finest possible bearing wood for the second year — and by grafting on the quince and bending the branches, fruit may be produced from a seedling pear in the third or fourth year from the seed, which in the common course would require from seven to fourteen years. [See *Introduction*, Section VIII. Subs. 3d.]

As to standards (pyramids) very little pruning is necessary, except taking out those few limbs that interfere, keeping the head open, and the tree well balanced.

The diseases and enemies of the pear tree are few. — They are as follows.

1st. *The Slug-Worm*. I have given directions for the destruction of this insect under the general head of *Insects*.

2d. The worm which in summer envelopes the leaves and branches with its silken covering, devouring the leaf to a skeleton. These are to be removed, together with the leaves on which they are found feeding, and destroyed.

3d. *Curculio*. An account of this insect is to be found under the general head of *Insects*.

4th. The insect called the *White Mealy Insect*. See also insects, under the general head.

5th. *Blight*, or as it is sometimes called *fire-blight*, is a malady not very common, which sometimes affects the pear tree during the months of June and July, causing the tree, or a portion of its branches, suddenly to turn black, with a mortal affection; its leaves wither at once, as by a stroke of the sun, and in a few hours become of a brown or black color. Mr Lowell is persuaded that this disease is caused by an insect, called the *Scolytus pyri*. He observes, "on the first appearance of this disease, I instantly sawed off all the limbs affected, and proceeded to examine them. I

found at last the enemy, not *at the point* where death ensued, but some inches below it. The insect was very small, and apparently incapable of such extensive mischief, but the effect was certain, and the manner of producing that effect was obvious. It had eaten a complete circle of the alburnum, or sap-wood, not exceeding the size of a knitting needle, so as completely to intercept the passage of the sap." This insect was shown by Mr Lowell to the late Professor Peck, and in the account of the insect which was soon after published in the Massachusetts Agricultural Repository, the Professor observed, that the mischievous effects of this insect may be observed in June and July, and that the dead part of the branches should be cut off without delay and burnt. Mr Lowell has stated [New England Farmer, vol. v. p. 2,] that by steadily pursuing the system of cutting off the limbs many inches below the apparent injury, and burning them, the insects have been extirpated from his estate.

The account of Professor Peck was republished in the New England Farmer, Vol. II. p. 42. Some writers have attributed this disease to a stroke of the sun. Others attribute it to manuring too high, some to excessive moisture at the roots, and too much pruning, which is supposed to cause a surfeit and produce a stagnation. But all agree that the only remedy is to saw off the limb.

QUINCE. — (*Cydonia.*)

THE Quince tree is a spreading tree of low growth, its limbs generally distorted; the leaves are roundish or ovate, entire, their petioles short; the flowers are large, pale red or white, the fruit a pome, roundish oblong or ovate; the skin is downy; of a green, yellow or orange color; the pulp firm, of a harsh, astringent, and aromatic flavor. It is said to be a native of Austria, of Candia, and other parts of Europe. According to Goropinus, "quinces were the Golden apples of the Hesperides, and not oranges, as some commentators pretend." — *Phillips*.

USES.

The quince is not eaten in a raw state, but is highly esteemed in cookery; preserved in sugar they are delicious; but previous to being thus preserved they should be immersed for ten minutes in boiling water, this prevents them from becoming hard; mixed with apples in pies, they communicate a fine flavor. They are also made into marmalade by the confectioners.

"One quart of the juice of quinces, mixed with one pound of sugar and fermented, affords a delicious wine; on adding to the same quantity, one pint of the best French brandy, and four ounces of sugar, a celebrated *liqueur* is prepared on the continent, which is greatly prized as a cordial and stomachic, when taken in the small quantity of two or three spoonfuls before breakfast."—*Dom. Ency.*

Phillips relates the case of a gentleman completely cured of an asthmatic complaint of long standing, by the use of *Quince Wine*, made after the following receipt. "The quinces are cut open and deprived of their seeds, for these communicate an unpleasant flavor. After being ground fine, a gallon of water is to be added to every gallon of pomace; after standing a day or two it is pressed; and to every gallon of liquor thus produced, three and a quarter pounds of good moist sugar is added. The liquor is placed in casks which are to be stopped quite close till March, when it is racked off, and bottled in the second year."

VARIETIES.

ORANGE QUINCE, *Maliforma* or *Apple Quince*, is a large, roundish, beautiful fruit, ripening in November. The leaves are oval and woolly the lower side.

OBLONG OR PEAR QUINCE. *Oblonga*. This fruit is pear shaped, lengthened at the base. Leaves oblong ovate.

PORTUGAL QUINCE. *Lusitanica*. This fruit is of a variable form, sometimes pear shaped; very juicy and astringent; it is highly esteemed. Loudon states that it is rather a shy bearer. Leaves obovate, woolly above.

To this list may be added the *Winter Quince*, and the *French Musk Quince*, and the following.

JAPAN QUINCE. *Cydonia Japonica*, or *Japan Pear*.

Pyrus Japonica. A shrub growing six or eight feet in height; branches contorted and thorny; leaves small, oval oblong, of a dark shining green. Its flowers splendid, of a fine scarlet, an inch and a half in diameter, and produced in clusters early in April. A native of northern Asia, and one of the most ornamental plants of the season, and very hardy. The fruit is of good size, but is not thought equal to the other varieties. There is a variety with white double flowers — and another with double red flowers.

CHINESE QUINCE. *Cognassier de la China.* N. Duh. Pl. 155. A new ornamental variety — unlike all others. This fruit is as singular as superb; blossoms fifteen to eighteen lines in diameter; of a fine rose color; their odor that of violets. Leaves obovate, stiff, pointed, finely serrated, shining green above, becoming reddish in autumn, downy beneath. The fruit is oblong, truncated, regular; the skin smooth, yellowish green; the flesh is yellowish, dry, coarse grained, harsh, austere; its juice acid and not abundant. This fruit seldom arrives at maturity in the climate of Paris. But hopes are entertained that by planting the seeds, new and fine varieties will be produced, which will ripen in due season.

CULTIVATION.

The quince is raised from the seeds, from layers and from cuttings, planted in a moist soil. The valuable varieties are propagated by grafting or inoculation. Quinces are extensively used in France as stocks on which are inoculated pears. This is said to improve the quality and productiveness of the *Beurre* or *Butter Pears*, especially the summer and autumn kinds. But breaking or winter pears are seldom or but rarely inoculated on the quince stock, as they are not improved.

SOIL, SITUATION, PRUNING. Quinces require a rich, moist soil, and a sheltered situation. They flourish near brooks and rivulets. They require little pruning, except taking out old useless wood and useless suckers, and eight or ten feet asunder is a good distance. Like the apple tree they are liable to the attacks of the borer. The same remedies are equally effectual.

PEACH. (*Amygdalus Persica.*)

THE peach tree is a tree below the middle size, with spreading branches, of rapid growth. The leaves smooth, lanceolate, serrated; the flowers are sessile, their calyces reddish, corollas pale or dark red; the fruit a drupe of a roundish form, sometimes pointed, with a longitudinal suture or groove; the skin is downy in the peach, but smooth in the nectarine, its color varying from white or yellow to red and violet; the pulp thick, fleshy, or succulent, white or yellowish, sometimes red; juice sweet, or subacid, and abundant, of a grateful and delicious flavor; stone hard, ovate, pointed, compressed, irregularly furrowed; the kernel bitter. The tree blossoms in April; the fruit ripens from July to late in autumn. The tree is not of long duration. Persia is considered the original country of the peach, although it is said to have been cultivated from time immemorial in most parts of Asia. Sickler asserts, according to Loudon, that "in Media, it is deemed unwholesome; but when planted in Egypt, it becomes pulpy, delicious and salubrious." The peach according to Columella, when brought from Persia into the Roman Empire, possessed deleterious qualities; which Mr Knight concluded to have arisen from those peaches being only swollen almonds, (*tuberes*) or imperfect peaches; and which are known to abound in the prussic acid. The best peaches in Europe are at present grown in Italy on standards."

The best peaches of France, according to Phillips, are those produced at Montreuil, a village near Paris, where the whole population are exclusively employed in their cultivation, and by this have been maintained for several ages. They are cultivated here on lime-whited walls of great extent. Their climate requires it.

In the United States they flourish as in their native land—producing fruit of an excellent quality, wherever the maize or Indian corn will ripen to maturity. In New Jersey there are those who cultivate this fruit exclusively; and at Shrewsbury on a single plantation 10,000 bushels

are annually produced for the New York market. It is also extensively cultivated in the Middle, Southern and Western States, for the purposes of distillation; on the refuse of the orchard or distillery, numerous swine are fattened.

USES. The peach is not only a first rate dessert fruit, but it makes a delicious preserve. In cooking the most delicious pies are made of them. For this purpose they require no preparation; they are used whole, simply placed in deep layers, sprinkled with sugar, and enveloped in the pastry; no further additions are necessary; the stone or kernel communicates its flavor, which is superior to that of the costly spices. Peaches are preserved by drying, and in this state they may be long preserved; and thus prepared, they may be either eaten at the dessert like raisins, figs, and prunes, or used in cooking; and might form a valuable article for sea stores or for exportation. I will here describe three modes of drying; and will suggest, that in drying them indoors, the furnace should be placed in the cellar, and the drying effected in the apartment above by an ascending current of heated air.

In some of the Southern States the drying process is facilitated by a previous scalding. This is effected by immersing baskets of the fruit a few minutes in kettles of boiling water. They are afterwards halved, the stone separated, and being laid with the skins downwards, the drying is effected in the sun in three days of good weather. They then may be stored in boxes.

In France as we are informed, peaches and other fruits are thus dried whole. The peaches or other fruits being pared, are boiled for a few minutes in a syrup consisting of one pound of sugar dissolved in three quarts of water, and after being drained by being laid singly on broad dishes, they are placed in the oven after the bread is taken out, and when sufficiently dry they are packed in boxes. The following is the mode of drying practised by Mr Thomas Bellangee, of Egg Harbor, New Jersey. He has a small house provided with a stove, and drawers in the sides of the house lathed at their bottoms, with void intervals. The peaches should be ripe and cut in two, not peeled, and laid in a single layer on the laths, with their skins downward, to save the juice. On shoving in the drawer, they are soon dried by the hot air produced by

the stove. In this way great quantities may, successively, in a single season be prepared, with a very little expense in the preparation of the building and in fuel.

Wine of superior flavor may be made from peaches—for this purpose the stones are separated, the pulp is finely bruised and intimately incorporated with a proportion of water and brown sugar. After remaining in the vat from twelve to twentyfour hours and being occasionally stirred, the liquor is separated by straining and by pressure, and barrelled. Mr Gourgas however has recommended to incorporate the pulp and water by boiling; after straining add sugar, and after standing twelve hours, the clear liquor is poured from the sediment, into the cask which is now to be bunged down.

From the kernels, according to Bosc, an oil is drawn, possessing all the qualities of the oil of almonds.

The leaves steeped in brandy communicate their flavor, and the liquor thus prepared is used in every preparation in cookery instead of foreign spices. And according to Phillips a liquor resembling the delicious Noyeau, is prepared by steeping peach leaves in white brandy; this liquor is sweetened with sugar candy and fined with milk, and is difficult to be distinguished from the genuine Noyeau of Martinico. The leaves, if I am not mistaken, contain prussic acid; but so does the bitter almond; and this last article forms the basis of the Noyeau, which is prepared in Boston. *Crème de Noyeau* may also be prepared by adding to a pound of peach kernels coarsely bruised, a pound of bruised cherrystones, stones and all; three and a half or four gallons of the best brandy, two gallons of water, and five pounds of sugar. Add to each quart of liquor, two grains of bruised pepper, and eight drachms of bruised cinnamon. After the whole has stood three days, it is strained through flannel and bottled for use. Olivier asserts, [according to Bosc in *Nouveau Cours Complet d'Agriculture*,] that the inhabitants of Scio employ the leaves in dying silk of a deep green. They are also employed in medicine as a vermifuge, febrifuge, &c. Collected in autumn, they are used in the preparation of leather; and from the wood of the peach tree the color called rose pink is said to be produced.

A good peach possesses a thin skin, the flesh thick and firm, abounding in a sugary, vinous, and high flavored juice; the stone small.

CLASSIFICATION.

The systematic classification of peaches, first begun by Miller and Duhamel, and afterwards greatly improved by Mr Robertson (See Lond. Hort. Trans. vol. III. p. 384,) was brought still nearer to perfection by the Count Lelieur, by the Editors of the *Bon Jardinier*, and by Mr Lindley. The systems of these last named, differ not, however, from each other, very essentially.

The peach and the nectarine, both considered by the French writers as one and the same fruit, yet form separate classes. They have been divided into four classes — 1st, the *Peches*, freestone peaches, or those whose flesh separates from the stone; — 2d, the *Pavies*, clingstone peaches, or those whose flesh adheres to the stone; — 3d, the *Peches lisse*, smooth peaches or Freestone nectarines; — 4th, the *Brugnons*, or clingstone nectarine. The flowers form three divisions, accordingly as they vary in size; they are also distinguished by their color; and the leaves, from the difference in their formation, are divided into three classes. Thus by these various distinctions, together with the varying qualities of the fruit itself, and the variation in the growth of the tree, the accurate observer will be enabled with facility, if not with certainty, to identify and to describe any particular variety.

The form of the glands, and their position, are distinctly visible with the complete formation of the leaf; they retain their character permanently, till the leaf falls in autumn. The globose glands are to be found on the footstalks one, two or more, and one, two, or more on the points of the serratures. The reniform glands are also situated, some on the footstalks, but those on the leaves, grow within the serratures; they connect together seemingly, the upper and lower teeth of the serratures; the leaves of very vigorous branches have a greater number of glands than are produced on the leaves of the globose varieties. Sometimes however, glands are only discernible on the leaves produced by branches of vigorous growth.

VARIETIES.

Class I. Includes Freestones, or Peaches which part freely from the stone. This class is divided into two sections, and three subsections.

Class II. Includes the Pavies or Clingstones, arranged in the order of their maturity.

ABBREVIATIONS.

S. Denotes those leaves which are *serrated* and having no glands.

E. Denotes those leaves whose glands are *reniform*.

G. Denotes those leaves which have *globose* glands.

L. As applied to the flowers, denotes that they are *large*.

M. Denotes that those flowers to which it is applied are of *medium* size.

S. As applied to flowers, denotes that they are *small*.

p. Denotes that the flowers to which it is applied are of a *pale* color

r. Red. d. Dark

CLASS I. — SECTION I.

Freestone peaches, chiefly of French origin, arranged in the order of their maturity as nearly as can be ascertained on the best authority. As to the remaining freestones which are not described in this section; finding it difficult if not impossible to ascertain the true comparative times of their maturity, I have placed them in a separate section.

RED NUTMEG.

AVANT PECHÉ ROUGE, of the French.

The growth of this tree is exceedingly slow, its habits dwarfish. The fruit is bright scarlet next the sun; globular and very small; it is sweet, juicy and good. Middle of July; only valuable for its early maturity.

WHITE NUTMEG.

AVANT PECHÉ BLANCHE, Bon Jard.

The tree is feeble and of delicate growth; fruit small, round, always white, juicy and sweet. It ripens in July, and is only cultivated for its precocity. [Leaves S. Flowers L. p.]

***EARLY ANNE.**

AVANT PECHÉ BLANCHE, of French. ANNE.

The trees of this variety are of feeble growth; the young wood is subject to mildew. Fruit small, white, globular; the flesh white, melting, saccharine, and good. The chief merit is its ripening early. August. [Flowers L.]

PETITE MIGNONNE. Duh. Pl. ci.

DOUBLE DE TROYES.

The tree is of feeble growth, and productive. The fruit is very small, round, its suture deep, a small point at its summit; the skin downy, fine, pale yellow, but red next the sun; the flesh melting and white, but red next the stone; juice abundant, a little sweet, vineuse and of the best quality. Last of July. [Leaves R. Flowers M.]

EARLY MIGNONNE. Bon Jard.

MIGNONNE HATIVE, Bon Jard. 1828, p. 293.

A variety of the Grosse Mignonne, but much smaller; it is sometimes pointed at its summit. [Leaves G. Flowers L.]

EARLY PURPLE. N. Duh. Bon Jard.

POURPRE' HATIVE. LA VINEUSE. PECHÉ DU VIN. Ibid.

One of most beautiful of peaches; encompassed by a middling suture; of a globular form, flattened at the base; its height twentysix lines. Flowers large, and brighter than those of the Grosse Mignonne; the fruit large, and of a deeper red; the flesh equally melting, and fine, vinous and high flavored. August.

***GROSSE MIGNONNE.**

MIGNONNE, GROSSE MIGNONNE, VELOUTE'E DE MERLET, of the French.

GRIMWOOD'S NEW ROYAL GEORGE, EARLY VINEYARD.

ROYAL KENSINGTON. Pom. Mag. Lind.

VINEUSE DE FROMENTIN. Thompson. TRANSPARENT. Ibid.

ROYAL SOUVERAIN. Ibid. POURPRE DE NORMANDIE. Ibid.

BELLE BEAUTE'. Ibid.

MORRIS' RED RARERIFE.

This last synonyme I have added on the authority of a gentleman near Boston, of great intelligence and experience. This peach, exhibited by Mr Vose, has been adjudged as deserving the premium of the Massachusetts Horticultural Society, for one or two successive years, and is probably one of the most beautiful and delicious varieties in cultivation. The fruit is large, depressed; hollow at the summit, its suture moderately deep. The skin

slightly downy; of a fine deep red next the sun, marbled on a yellow ground towards the shade. The flesh pale yellow, rayed with red next the stone, melting, juicy, of a rich vinous flavor; the stone rugged, ovate. Last of August. [Leaves G. Flowers L. d. r.]

VINEUSE DE FROMENTIN. N. Duh.

The leaves are large and finely serrated; the tree vigorous and hardy. The fruit large, very downy, rather long; divided by a deep suture, terminating in a point; of a beautiful deep red next the sun; the flesh white, marbled next the stone with red; juice sweet, high flavored, with vinous acid, and very good. The stone is large, oblong, acuminate. It ripens early in September, and is one of the best of peaches. This is not the Vineuse de Fromentin of Noisette, which ripens the 15th of August.

BELLE BEAUCE. N. Duh Pl. cccxiv.

So named for M. J. Beauce of Montreuil. A variety of the Grosse Mignonne. The fruit is very large and beautiful; round, divided by a deep suture, flattened at the summit; color fine yellow in the shade, laved with a beautiful bright red next the sun, and downy; the flesh white, very fine, melting; yellowish, streaked with red near the stone; juice abundant, sweet, excellent. The stone is large and red. Last of August.

MIGNONNE FRISE'E. Bon Jard. N. Duh.

PECHER A FLEUR FRISE'E. N. Duh.

The tree is vigorous; the fruit has all the beauty and excellent qualities of the Grosse Mignonne, and is evidently a variety of that kind. The stone is rough, of a deep red color and retains shreds of the flesh when separated. This singular new variety ripens the last of August.

BELLEGARDE.

NOIRE DE MONTREUIL, GALANDI. Bon Jard.

VIOLET HATIVE, of some English Authors.

SMOOTH LEAVED ROYAL GEORGE, of some. Thompson.

The tree is vigorous and productive; the fruit is of medium size, much colored, and almost black; the flesh resembles the Belle de Vitry; it is firm, saccharine, vineuse, and one of the best of peaches. It ripens in August. [Leaves G. Flowers p.]

WHITE MAGDALEN.

MAGDELEINE BLANCHE. Bon Jard.

The tree is vigorous; the fruit is large, white, slightly

red next the sun; the flesh white, fine, melting, and agreeably musky. It ripens in August. A fruit of middling quality with us. [Leaves S. Flowers L. p.]

***MALTA.**

PECHE MALTE, Duh. BELLE DE PARIS. Bon Jard.

MALTE DE NORMANDIE. Hort. Soc. Cat.

ITALIAN PEACH, of Mil. according to the Pom. Mag.

The fruit is above the medium size; pale yellowish green; but next the sun somewhat marbled with purplish red; globular, a little flattened, encircled with a slightly depressed suture; flesh yellowish, juicy, rich, vinous and of superior flavor. An excellent and most productive variety, ripening in September. [Leaves S. Flowers L. p.]

***YELLOW ALBERGE.**

ALBERGE JAUNE, PECHER JAUNE, ROUSSANNE.

SAINT LAURENT JAUNE. Bon Jard.

PETITE ROUSSANNE. Bon Jard.

ROSANNA. Lindley. ALBERGE. COXE.

A middle sized globular fruit, of a yellow color in the shade, deep red next the sun. A deep suture extends from summit to base. The flesh deep yellow, but red next the stone, melting, juicy, rich, sweet, vinous and excellent. A superior fruit, ripening in August.

BELLE CHEVREUSE. Duh. R. M.

CHEVREUSE HATIVE, Bon Jard. p. 296.

EARLY CHEVREUSE.

The fruit is large, inclining to oblong, sometimes pointed; yellowish in the shade, marbled with bright red next the sun; the flesh white, but red next the stone; melting, juicy, very sweet, vinous and excellent. August. [Leaves, R. Flowers, M.]

RED MAGDALEN COURSON. Bon. Jard.

MAGDELEINE DE COURSON, MAGDELEINE ROUGE.

PAYSANNE, Bon Jard. p. 295.

The tree is vigorous. The leaves have deep serratures, and are without glands; flowers large and pale. The fruit is rather large, round, of a beautiful red next the sun; flesh firm and vinous. Beginning of September. [Leaves, S. Flowers, L. p.]

BOURDINE. Bon. Jard. 1828, p. 296.

BOURDIN, NARBONNE.

Flowers small and imperfect, the leaves have globose glands. The fruit is large, round, sometimes pointed; of a deep red next the sun; the flesh is melting, sweet, and

vinous; its stone is small. It is productive in unsheltered situations. Middle of September. [Leaves, G. Flowers, S.]

***BELLE DE VITRY.**

ADMIRABLE, Duh. Cox. R. M.

A large fruit of a fine red color next the sun; yellowish white in the shade; the form globular, divided by a suture; a broad deep cavity at its base; the flesh is white, stained with red at the stone; melting, juicy, sweet, vinous and excellent. A superior fruit. September.

ISPAHAN. N. Duh. Pl. xxiv.

PECHER D'ISPAHAN. Ib.

This singular tree was discovered in 1799, by Brugniere and Olivier, at Ispahan, the capital of Persia, in the vast Royal Gardens, where were concentrated most of the fruits of Asia. The branches are very slender and numerous, the leaves very narrow, finely serrated, of a delicate green color, and unlike those of any other variety known. The fruit is nearly spherical; the skin of a whitish green; slightly downy; flesh greenish white, melting, and separates from the stone; juice abundant and delicious.

LATE CHEVEREUSE. N. Duh.

CHEVEREUSE TARDIVE, N. Duh. Pl. 238.

The vigor of this tree is remarkable, its fertility extraordinary. The fruit should be thinned; it is rather globular, a little oblong, flat sided, and pointed; but at maturity, of a fine form and good size. The skin downy, of a lively red, but next the sun a purple red; yellowish green in the shade; the flesh white, streaked with red next the stone; melting, very good; juice sweet, sprightly and vinous. September. [Leaves large, S. Flowers, B.]

DOUBLE FLOWERING.

PECHE A FLEURS DOUBLES, Bon Jard.

The leaves have reniform glands. The tree is cultivated for the beauty of its flowers, which are often semidouble and very large. Fruit good and pretty numerous. September.

LATE PURPLE.

POURPRE TARDIVE, N. Duh.

The tree is vigorous; the leaves are strikingly crispy or frizzled in autumn, and by this distinguished. The fruit of medium size, round, and one of the most downy of all

peaches ; often swollen on one side ; its diameter twenty-eight lines ; skin thick, a little yellow in the shade, and laved with fine deep red next the sun ; the juice high flavored and sweet ; the stone is oval, and small ; an excellent peach, the best of the season ; September.

YELLOW ADMIRABLE, OR APRICOT PEACH.—

Bon. Jard. 1828, p. 293.

ABRICOTE'E, ADMIRABLE JAUNE, PÊCHE D'ORANGE.

GROSSE JAUNE, PÊCHE DE BURAI, SANDALIE HERMAPHRODITE.

The leaves have reniform glands. Flowers large. The fruit is very large, yellow while immature, but at maturity a little laved with red next the sun ; the flesh firm, yellow, with a little of the flavor of the apricot. The climate of Paris is a little too cold to ripen this fruit to its full perfection. But here it will without doubt prove excellent. — [Leaves, R. Flowers, L.]

CARDINALE. N. Duh. Pl. CCXXXVII.

CARDINALE DE FURSTENBERG. Thompson.

The fruit is medium sized, flattened at its summit ; swollen on one side of the suture ; the skin dull gray violet, very downy and hoary ; the flesh marbled with violet red, but slightly tinged with yellow next the stone ; not very juicy, and deficient in flavor ; good for preserving. It ripens at Paris from the 10th to the 20th of October. In warmer climates it is good, and in Italy excellent. [Leaves, S. Flowers, L. p.]

DWARF ORLEANS.

PECHER NAIN. N. Duh. Pl. CCCC.

A singular and most diminutive tree. Flowers pale, large, and from twelve to fifteen lines in diameter. The flesh juicy and generally bitter. This very ordinary fruit does not ripen till late, the middle of October ; it is only cultivated for curiosity ; and often cultivated in a pot and brought with its fruit to the table. [Leaves large, S.]

*NIVETTE. R. M.

VELOUTÉE TARDIVE, Jard. Fruit, according to Bon Jard.

The fruit is large, a little oblong, downy, green in the shade, and deep red next the sun ; the flesh firm, saccharine, and high flavored ; a most superior fruit and highly recommended. September. [Leaves, G. Flowers, S.]

ROYALE. Bon. Jard. Forssyth. Pom. Mag.

ROYAL. Pom. Mag. t. 73.

The fruit much resembles the Admirable, it is very large,

globular, a little oblong; pale yellowish green, but pale red, marbled with deeper red next the sun, and downy; a small point at its summit; the flesh white, melting, juicy, saccharine, and high flavored. It is red at the stone, from which it separates. September. [Leaves, G. Flowers, S.]

***RED MAGDALEN.**

MAGDELEINE A MOYENNE FLEURS, Bon Jard.

MAGDELEINE ROUGE TARDIVE OU A PETITE FLEURS. Ib.

ROYAL GEORGE of the English, according to the Pom Mag.

MILLET'S MIGNONNE, LOCKYER'S MIGNONNE. Ib.

NEW ROYAL CHARLOTTE, Thomp.

That the Red Magdalen and Royal George are identical, has been renewedly asserted by a gentleman here of great observation and experience; I have ventured therefore to restore the original, and suppress the English name of *Royal George*, except as a synonyme. The young wood is liable to mildew. The fruit is large, globular, with a suture, moderately deep on one side; dark purplish red next the sun, yellowish white in the shade, mottled with red at the junction of the colors; the flesh white, rayed with red next the stone; melting, juicy, and high flavored. Sept. [Leaves, S. Flowers, S.]

***TETON DE VENUS.**

The tree is one of the most vigorous in its growth known, and very productive. The fruit is large, of a pale yellowish green, but bright red darkly marbled next the sun; form globular, a little lengthened; it is encircled by a broad deep suture, terminating in a large obtuse point at its summit; the flesh melting, of a greenish yellow, but at the stone it is red; and of a sweet and excellent flavor. It ripens early in October. There are two or three varieties bearing this name. This is the variety described in the New Duhamel, and a most superior fruit.

CLASS I. — SECTION II.

It was found difficult if not impossible to arrange the remainder of this class in the perfect order of their maturity, as many of them are new, and the relative periods of their maturity have never yet been satisfactorily ascertained. They are therefore divided into three subsections, arranged for the latitude of Boston.

Subs. I. Includes *Early Peaches*, or those which commence ripening during August.

Subs. II. Includes the *Early Autumn*, or those which commence ripening early in September.

Subs. III. Includes *Late Autumn, and Autumn Peaches*, also all those whose periods of maturity are unknown.

SUBSECTION I.

EARLY PEACHES, OR THOSE WHICH COMMENCE RIPENING DURING AUGUST.

*COOLEIDGE'S FAVORITE.

COOLEIDGE'S EARLY RED RARERIPLE.

The tree is very vigorous and productive. A large, very handsome globular fruit; pale in the shade, but of a fine red or crimson next the sun; very melting, juicy, sweet, and of a vinous flavor. This fruit ripens very early, soon after the *Early Ann*; and is esteemed a first rate fruit by the cultivators for the markets of Boston. It was originated by Mr Joshua Cooleidge of Watertown, Mass.

DOUBLE MONTAGNE. Lind.

SIGN. Forsyth. EARLY DOUBLE MOUNTAIN.

MONTAUBAN. Thompson.

Middle sized, of roundish form; color greenish white in the shade, pale red, marbled with deep red next the sun; flesh white, melting, juicy, high flavored. Stone ovate, rugged. A beautiful and excellent fruit. [August?] [Leaves S. Flowers L.]

*EARLY ROYAL GEORGE.

A very large, handsome, and superior fruit, of a globular form; of a yellow color in the shade, but of a fine deep red next the sun; the flesh melting, juicy, saccharine, vinous, and most excellent. It ripens in August, and is one of the very best of all peaches, and a most productive kind.

*EARLY RED RARERIPLE OF RHODES. R. M.

The fruit is large, of a deep red color, which covers most of its surface; of a globular form; the flesh stained to the stone with red; melting, juicy, rich, slightly acid, vinous and excellent. An excellent fruit, and deserves to be recommended.

EARLY YORK. S. H. S., Esq.

A large fruit of an excellent quality. August.

EMPEROR OF RUSSIA.

SERRATED LEAF, or UNIQUE.

The tree grows slowly and is liable to mildew. The leaves are deeply and coarsely serrated, like the teeth of a saw. The fruit is unequally divided by a deep suture; its flavor good. It ripens in August. [Flowers S.] This variety, according to Mr Floy, was found wild in the woods of New Jersey.

MAGDELEINE-DE BOLLWILLER. Thompson.

The fruit is of medium size, pale green in the shade, deep red next the sun; the flavor excellent. Early in September. [Aug. ?] [Leaves S. Flowers L.]

MOUNTAINEER. Thompson.

Raised from the Red Nutmeg and Early Violet Nectarine. The fruit is sometimes partly smooth; the size large; pale yellow in the shade, red next the sun; of excellent flavor. Beginning of September. [August ?] [Leaves G. Flowers L.]

***OLDMIXON FREESTONE.**

A large peach, of a yellowish white color, with a fine red blush next the sun; the form a little oblong; the flesh is sweet, rich, juicy and excellent. It ripens the last of August. A beautiful and superior variety.

***RED RARERIPPE, var.** S. H. S., Esq.

The leaf of this tree is smooth and without serratures; the fruit is large, its suture deep; covered with minute specks or dots of red in the shade, but of a red color next the sun. This peach is decidedly one of the very best of all peaches. It ripens soon after the Nutmeg Peach; and the tree is not liable to overbear. Early in August.

SMOOTH LEAVED ROYAL GEORGE. Lind.

The fruit is above the middle size, globular, depressed; of a yellowish white color, but beautiful red or carmine next the sun. The flesh melting, yellowish white, but red near the stone; juice very plentiful, sugary, and of a high vinous flavor. Stone small, rugged. Not only of the handsomest, but one of the best of Peaches. Middle of September. [August ?] [Leaves G. Flowers L. p. rose.]

SPRING GROVE. Hort. Trans. Pom. Mag.

A medium sized fruit, of a globular form; of a greenish yellow color, but bright crimson next the sun; the flesh

greenish yellow to the stone; juicy, rich and high flavored. Very early. The fruit was raised by Mr Knight from a stone of the Early Purple and Red Nutmeg. [Leaves G. Flowers L. p.]

SWEET WATER.

A medium sized peach; very juicy, sweet, and fine flavored. It ripens the beginning of August, about one week later than the Early Anne; and is much larger than that variety and finer flavored. An American variety. [Leaves S. Flowers L.]

SUBSECTION II.

EARLY AUTUMN PEACHES, OR THOSE WHICH COMMENCE RIPENING EARLY IN SEPTEMBER.

DOUBLE SWALSH. Lind.

SWALZE or SWOLZE, of Lang. according to Lindley.

The fruit is middle sized, ovate. Its suture deep, swollen on one side. The skin pale yellow, but bright deep red next the sun; the flesh is soft, melting, and white, but pale red at the stone; juicy and well flavored. It ripens at the time of the Grosse Mignonne. [Leaves R. Flowers S. red.]

*GEORGE FOURTH.

The fruit is of medium size, downy; of a globular form, swollen on one side; pale yellow in the shade, dark red next the sun; the flesh pale yellow, but red next the stone; of a rich and excellent flavor. This fine fruit originated according to Mr Floy, in the garden of Mr Gill, Broad Street, New York. [Leaves large, G. Flowers red, S.]

*HOFFMAN'S FAVORITE.

A large round fruit; pale in the shape, red next the sun; the flesh juicy, sweet, vinous and excellent. Early in Sept. JACQUES.

Roundish oblong, of good size; of a yellowish color but red next the sun; flesh yellow, melting, juicy, sweet, and good. Early in September.

*MELLISH'S FAVORITE.

A very beautiful and excellent fruit of good size and globular form; fine yellow in the shade, of a fine deep crimson or purple color next the sun; juicy, rich, sweet,

of a superior flavor. It much resembles the Washington. The tree is a great bearer. Early in September.

***MORRIS' WHITE RARERIFE.**

MORRIS' WHITE LUSCIOUS.

The fruit is large, round or oval; of a delicate white color; the flesh white, juicy; flavor sweet, rich and excellent. Middle of Sept. [Leaves R. Flowers S. p.]

***SARGENT.**

So called from the name of a gentleman in Pearl Street, Boston, with whom this variety originated. The tree is of moderate growth, but very productive. The young wood extremely subject to mildew. A medium sized, round fruit; of a yellow color in the shade, slightly red next the sun. The flesh is yellow, juicy, sweet and excellent. A handsome and fine variety. Early in September.

***SNOW PEACH.**

Sometimes called White Blossom. The tree is an abundant bearer. The fruit is of handsome size, round; the skin very thin, white, and delicate; the flesh very tender, juicy, sweet and delicious. A beautiful and excellent fruit. There is another variety of *Snow Peach*, sometimes called *White Blossom*, or *Willow*. The blossoms very white, the tree resembles a willow; the fruit small, round, white; very juicy, tender, sweet, delicious. A most delicate and beautiful fruit. The tree a great bearer.

***WASHINGTON RED FREESTONE.**

The tree is a very great bearer; the fruit is of good size, round; of a fine yellow color in the shade, fine dark crimson next the sun; juicy, rich, of a sweet, vinous, and delicious flavor. A beautiful and superior fruit. Early in September.

WELD'S FREESTONE.

A very large, round fruit, of superior excellence; of a dull yellow color in the shade, red next the sun; of a rich, sweet, vinous, and delicious flavor; handsome and very fine. A new fruit, raised by Mr Eben. Weld of Roxbury, and so named by the Committee of the Massachusetts Horticultural Society. Last of September.

WHITE MALACATUNE. Cox.

WHITE RARERIFE. Cox.

A large fruit of extraordinary excellence; of a pale yellowish white color; the flesh yellowish white, firm,

melting, rich, and of excellent flavor; the stone is not unfrequently cracked. Mr Cox states that it is the most admired fruit of the season, which is August, and that if not too ripe, it makes a most delicious preserve.

YELLOW OR RED CHEEK MALACATUNE.

A large fruit, a little oblong; of a deep yellow color in the shade, but dark red next the sun; its flesh is melting, juicy, rich and excellent. Early in September.

SUBSECTION III.

LATE AUTUMN, AND AUTUMN PEACHES INCLUDING ALSO ALL THOSE NEW VARIETIES WHOSE PERIODS OF MATURITY ARE NEITHER NAMED OR KNOWN.

ENGLISH CHANCELLOR.

CHANCELLIERE, of Duh. according to Pom. Mag.

The fruit is large, a little oblong, rather downy; its suture well defined; of a pale yellow color, but deep crimson next the sun; marbled at the junction of the colors; the flesh yellowish white, but red at the stone; juicy, rich, and of a vinous flavor. [Leaves R. Flowers S. red.]

CHINA FLAT PEACH. Hort. Trans. vol. iv. p. 512.

JAVA PEACH.

A most singular peach. This description is from a fruit raised by John Braddick, Esq. This peach is said to be much cultivated and esteemed in China; and will probably succeed well with us. The diameter from the eye to the stalk is less than three quarters of an inch, and consists wholly of the stone and a skin which covers it. The thickness of its sides is one inch and an eighth, while its transverse diameter is two inches and a half. The skin is pale yellow, mottled with red next the sun and covered with fine down. The flesh pale yellow, a beautiful radiated circle of fine red surrounding the stone, which is flatly compressed, small, rough, and irregular. The fruit is melting and good, being sweet and juicy, with a little Noyeau flavor and bitter aroma.

COLUMBIA.

A large and very singular peach, with an extremely rough and thick skin, of a dull red color, marbled with blotches of a dark dusky red; its form rather flattened, with a suture well defined; the flesh yellow, melting, juicy,

rich, fibrous, and well flavored. September. This peach is a curiosity. Mr Coxe, who probably originated this variety, calls it a fruit of uncommon excellence.

BUCKINGHAM MIGNONNE. Pom. Mag.

BARRINGTON. Pom. Mag. Lon. Hort. Cat.

"Leaves crenated, with globose glands; flowers large; the fruit is large, roundish, somewhat elongated; pale yellowish green, but deep red and marbled next the sun; the flesh yellowish white, rayed with crimson next the stone; melting, juicy and very rich; a productive and handsome variety."

***HEATH.**

KENRICK'S HEATH.

This noble variety was received from the late Gen. Heath of Roxbury, of revolutionary memory, hence its name. The tree is very vigorous and productive, and is probably a native. The fruit is, very large, oblong and beautiful; specimens have frequently been seen weighing half a pound; pale yellowish green in the shade, but beautiful deep crimson or violet next the sun; unequally divided by a slight suture, which terminates in a point: the flesh is melting, juicy, rich, vinous, agreeably acid and good. Middle of September.

MIFFLIN'S PENNSYLVANIA. Col. Carr.

In the absence of the true title, I have for the present adopted the above for a new native variety, received of Col. Carr, of Bartram's Botanic Garden. It is described as a fruit possessing remarkably fine qualities, and highly spoken of by the Philadelphia Horticultural Society.

NOBLESSE.

MELLISH'S FAVORITE. Thompson. VANGUARD. Ib.

The tree is of vigorous growth, and very productive; The fruit is generally large and round, but sometimes oblong, with a very small nipple; marbled with red and dull purple next the sun; the flesh is white, tinged with yellow; white at the stone; very sweet and melting, but perhaps less vinous than some others; it ripens well and early. The stone is short, round, and very prominent, rough. [Leaves S. Flowers L. rose.]

***ORANGE PEACH.** R. M., Esq.

The fruit is large, of a globular form; of a fine yellow

color ; the flesh very sweet, juicy, rich and excellent. It ripens about the middle of September.

***PRESIDENT. R. M., Esq.**

A large downy fruit, roundish, approaching to oblong ; a shallow suture ; pale yellowish green, but red next the sun ; the flesh is whitish, juicy, melting, rich and high flavored. The stone is large, pointed, rugged. With us this fruit is very superior. September. [Leaves G.]

ROBINSON CRUSOE. Col. Carr.

A very fine large red peach, of excellent quality ; lately originated near Philadelphia, from a stone brought by Lieut. Cox of the Navy, from the Island of Juan Fernandez, in the Pacific Ocean. There are four varieties bearing the above title, and numbered from one to four inclusive ; all large and fine.

***VAN ZANDT'S.**

The tree is of very vigorous growth ; the fruit is of medium size, round ; color red and white, and handsome. The flesh melting, juicy, and of excellent flavor. This variety originated with Mr Van Zandt, of the State of New York. September.

WEeping PEACH.

The branches of this variety droop, and its appearance resembles that of the Weeping Willow. For this peculiarity it is chiefly remarkable. The fruit has been described as of good size, of an oblong form, of a yellow color and good quality.

***YELLOW RARERIPE.**

A large globular formed fruit ; the flesh is yellow, juicy, sweet and excellent. This superior variety ripens early in Sept. There are many varieties bearing this title.

***YELLOW RED RARERIPE.**

The tree is a native, of very rapid growth. The fruit is of a large size, and globular form ; of a fine yellow or golden color in the shade, but dark purplish red next the sun ; the flesh deep yellow, rich, sweet, juicy and of a most delicious flavor. A first rate fruit. Ripe middle of Sept.

MORRISANIA POUND.

HOFFMANS.

The fruit is very large, round ; pale green in the shade, red next the sun ; very juicy and delicious, ripening late,

about the middle of October. Mr Floy states that this variety was received of Gouveneur Morris, of Morrisania, near New York, but it was originated by Martin Hoffman, Esq. [Leaves, G. Flowers, S.]

CLASS II.

Clingstones or Pavies, or Peaches whose flesh adheres to the stone; arranged, as nearly as can be ascertained, in the order of their maturity.

This class of peaches, it is said, are preferred to all others by the inhabitants of warm climates.

EARLY NEWINGTON. Coxe.

A beautiful fruit, of medium size, and globular form; of a white color in the shade, but red next the sun. The flesh juicy, rich and high flavored. The stone is small. Last of July. [Leaves R. Flowers L.]

CONGRESS. R. M. Esq.

A large fruit; yellowish white in the shade, bright red next the sun; juicy and of fine flavor. This variety may not prove a good bearer. August, September. [Leaves R. Flowers S.]

*LAFAYETTE.

A very beautiful fruit of a fine yellow color in the shade; bright red next the sun; juicy and of excellent flavor. The tree is a most productive and fine variety. August. Sometimes called Meiggs's Lafayette.

*SPANISH. C.

A large, round fruit; of a pale color in the shade; red next the sun; very juicy, sweet, vinous and excellent Early in October.

PAVIE JAUNE. N. Duh. Pl. ccclxxxix.

PERSICA NEWTONII, lb.

PAVIE ALBERGE, PERSEQUE JAUNE, BOB JARD.

YELLOW PERSEQUE.

The petioles have reniform glands; the fruit is very beautiful, very large, round, a little flattened at its summit, and marked with a groove; its diameter thirtythree lines; the skin is downy, yellow in the shade, of a very deep red

next the sun ; the flesh yellow, firm, not fibrous, and red or of a blood color next the stone ; the juice abundant, sweet and vinous. The stone is oval, obtuse, and of middling size. Ripe 12th September, at Paris ; excellent in warm summers. [Leaves R.]

***OLDMIXON CLINGSTONE. R. M. Esq.**

This fruit is large, globular ; pale yellow in the shade, but beautiful red next the sun ; the flesh yellowish white, very juicy, sweet, rich and fine flavored. An excellent and most productive variety. September.

***OLD NEWINGTON.**

This fruit is large and globular ; pale yellow in the shade, but of a fine bright red next the sun, sometimes marbled with deeper red ; the flesh is yellowish white, very juicy, rich, sweet and well flavored. An excellent fruit, ripening in September, and productive. [Leaves S. Flowers L.]

BRODIE'S.

Large, round. A very beautiful fruit, colored with fine red next the sun ; very juicy and fine.

MAMMOTH.

A large fruit of a pale color in the shade, red next the sun ; very juicy and fine. September.

***CATHERINE. R. M. Esq. Pom. Mag.**

Fruit large, round, variable ; color a beautiful red next the sun, marbled and dashed with darker shades ; pale yellow in the shade ; flesh very white, tinged with yellow, but firm, of a deep crimson next the stone ; juice abundant, and of a very rich and sweet flavor ; stone middle sized, roundish oval, very slightly pointed. It ripens with us in September. Mr Manning has stated that neither this, the Old Newington, nor the Oldmixon Clingstone, can be distinguished from each other by their external appearance, and are all first rate fruits. [Leaves R. Flowers S.]

PAVIE ADMIRABLE. Bon. Jard.

INCOMPARABLE, of the English and Lindley.

The fruit is large, roundish, swollen on one side ; skin pale yellow, but pale red shaded with light scarlet or deep crimson next the sun ; the flesh pale yellow, but red at the stone ; juice sugary, and well flavored ; stone roundish and almost smooth. Ripens at the time of the Catherine. — [Leaves R. Flowers S. P.]

***KENRICK CLINGSTONE.**

A new, large and excellent variety which originated here. The tree first bore fruit in 1833, and promises to become a most productive kind. The fruit is large, roundish oblong, pointed at the summit; of a golden yellow in the shade, red next the sun; flesh yellow juicy, sweet, vinous and excellent. Last of September.

GROSSE PERSEQUE. Bon. Jard. p. 298.

PERSEQUE ALLONGE'. lb.

The tree is productive in unsheltered situations. The fruit large and oblong, with swellings on its surface, of a red color next the sun. It requires a warm exposition, and will probably ripen with us late in September. [Leaves R. Flowers S.]

PAVIE MAGDELEINE. Bon. Jard. p. 294, 296.

PAVIE BLANC.

The tree is vigorous; the fruit is large and downy; white in the shade, and a beautiful red next the sun; the flesh white, fine, melting, and of an agreeable musky flavor. This fruit will ripen with us about the last of September. [Leaves S. Flowers L. P.]

***WASHINGTON CLINGSTONE.**

A large fruit; its color inclining to white, but next the sun a fine blush; of globular form; flesh melting, juicy, sweet and excellent. A superior fruit, ripening in September. [Leaves R. Flowers S.]

***LEMON CLINGSTONE.**

PINE APPLE, OR KENNEDY'S LEMON.

The fruit is rather large, oblong and pointed; of a deep yellow color in the shade, but of a dark fine red next the sun; the flesh is yellow, rich, vinous, a little acid; it is stained with red next the stone. September. [Leaves R. Flowers S.]

HOYTE'S LEMON CLINGSTONE.

This fruit is of the largest size; of a clear golden yellow in the shade, but bright red next the sun; the form resembles a lemon. The flesh is fine. Late in September. [Leaves G. Flowers S.]

MONSTROUS POMPONNE. Bon. Jard. p. 297.

PAVIE DE POMPONNE, GROS MELECOTON,
GROS PERSEQUE ROUGE,
PAVIE MONSTREUX, PAVIE CORNU, } of the French.

The fruit is the largest of all peaches, and often termina-

ates in a point at its summit ; it is downy ; of a waxen white color in the shade, of a very lively and deep red next the sun ; the flesh is firm, and excellent cooked. It requires a warm exposition and ripens in favorable seasons the end of October at Paris. This fruit will ripen earlier with us. [Leaves R. Flowers L.]

PAVIE TARDIF. N. Duh. Pl. ccc.

LATE PAVIE.

The tree is very vigorous in its growth ; the petioles have large brown reniform glands ; the fruit is large, compressed at its sides ; contracted towards its base ; it is divided on one side by a suture, which terminates in a point at its summit ; its height and breadth are three inches ; the skin is thick, more yellow in the shade than the Pavie de Pomponne, and laved with a fine red next the sun ; the flesh is more yellow and less firm than the Pavie de Newton, (Pavie Jaune) less red towards the stone ; its juice is more abundant, and we think more excellent. It ripens at the end of October, and may be preserved a long time. This fine new fruit will probably ripen earlier with us.

***HYSLOP'S CLINGSTONE.**

The trees of this variety are vigorous and productive. The fruit is large, rather oblong ; of a white color in the shade, changing to fine deep red next the sun ; the flesh melting, very juicy, sweet, vinous, and excellent. This variety ripens in October, and may be preserved till late in November, and is the latest variety which will generally answer in Massachusetts.

***WILLIAMSON'S. C.**

The tree is very extraordinary productive. The fruit is oblong, of good size, and terminated by a point ; white in the shade, but red next the sun ; very juicy and fine flavored. Middle of October.

HEATH CLINGSTONE.

The fruit is very large, rather oblong, terminated by a point at its summit ; of a cream color, with an occasional blush next the sun ; the flesh is tender, melting, extremely juicy and rich. It ripens late, too late for the climate of New England, except in very favorable seasons. Mr Coxé informs us that this fruit was raised from a stone brought from the Mediterranean, by Mr Daniel Heath ; and in his estimation is superior to all other peaches known ; the

stone generally opens, and the fruit if not too ripe, is one of the most admired preserved in sugar; that it ripens in October, and keeps till December. Leaves R. Flowers S.

CULTIVATION.

The peach tree is usually raised by planting the stones in autumn. Some, however, preserve them in soil exposed to the frosts of winter; in spring they are cracked, and either sown in beds or planted in the nursery, in rows four feet asunder, and about a foot distant in the row. In the same year or the year following, they are inoculated. The peach tree is usually inoculated on the peach stock. They are however, sometimes propagated on the almond; sometimes on the plum stock. Mozzard, according to Loudon, "prefers plum stocks, where the soil is strong and black;" and Dubreuil recommends a plum stock for a clayey soil; and the almond stock, for such as are light and sandy. The same opinion is held by the Montreuil cultivators." At Montreuil, we understand, the plum stock is not used because the soil is dry.

Peaches thrive best near the banks of rivers, and especially those of brackish water. The curculiones are stated to avoid a moist atmosphere and salt air on the borders of rivers or the sea.

SOIL, DISTANCE. — The most suitable soil for the peach tree is a rich, sandy loam; a light soil answers well. The soil of Montreuil as above stated is dry. The peach tree will not flourish on a cold, stiff, wet soil. On such a soil they may grow vigorously, but they produce but little fruit and that of ordinary quality. Some assert that they are more uniformly productive on the north side of hills, as it prevents their too early advancement before the vernal frosts are past. Ten or twelve feet asunder is deemed a good distance for the peach tree.

MALADIES. — The maladies to which the peach tree is subject are,

1st. The *Curculio*. For the remedies for this, see *Insect*, in the former part of this work.

2d. The *worm* which feeds on the sap-wood beneath the bark, principally near the surface of the earth.

The worm is produced by a fly which, from the middle of June, to the first of August, deposits its eggs on the bark of the tree, generally at its root, where the bark is tender. These are soon hatched, and the worm shortly penetrates beneath the bark, where it commences its work of destruction, devouring the sap-wood often around the whole circumference of the tree, causing the gum to exude and often death.

Much has been written and said of this insect; yet the prevention is very easy, provided there is a necessity for it, which is not the case in all soils and situations. It seems with us only an occasional evil and the remedies are seldom required. Whenever serious suspicions arise, let every tree be carefully searched at the surface of the earth, and the worm destroyed by probing with a pen-knife or pointed wire. About the beginning of June, form around the trunk of the tree a small conical mound, to the height of eight inches or a foot above the natural surface of the earth. Unleached ashes, which might be preserved for this purpose, are without doubt the best and most useful substance, and each tree will require about a peck. Charcoal broken small has been recommended; also cinders from the blacksmith's forge to be placed around the trunk for protection. But anything else, even soil is found to answer. The design of this is, to protect that portion of the tree where the bark is most tender; let this mound be levelled in October, and the bark will harden again beneath where it was placed. I am inclined to believe the potash wash before described, would answer every purpose, as it does with the apple tree if applied at the suitable time, also the wash recommended by Mr Lindley. The *Garden Compound*, sold by Messrs Barrett of Boston, and Ives of Salem, I am persuaded would be effectual. Also *coal tar*. A gentleman of Nantucket is trying it on the plank of his ships which sail to the Pacific, to preserve them from the attacks of the sea worm; the odor it exhales is powerful and lasting.

Another cheap, easy, and effectual mode, is practised by Mr Vose of Dorchester. About the last of May, the soil is removed to the depth of two inches round the trunk; a composition of clay, ashes, &c., is applied with a brush and over this stiff brown paper is wrapped around the tree to the height of a foot, and the earth replaced. Sharp

sand placed around the trunk of the tree in a small conical mound, has it is stated, been found an effectual protection from experiments made in Pennsylvania. And from experiments made in the state of New York by Mr Van Rensselaer, it appears, that powdered charcoal placed around the trunk to the depth of two inches is a protection. But the scoria from the blacksmith's forge would probably prove at least as effectual. And Mr Wilson of the same state, in his *Economy of the Kitchen Garden*, has recommended grafting clay to be applied round the trunk. Lastly, lime mortar mixed with sulphur, is found good. And common lime mortar alone applied round the tree, has been found effectual. With us no remedy is needed.

3d. But there is another malady which I believe is unknown in New England, or at least I have never seen or heard of such a disease with us. It is by some called the *yellow*s; and according to Mr Coxe, "the malady which destroys much the largest portion of the trees, has hitherto baffled every effort to subdue it; neither the source nor the precise character of the disease, appear to be perfectly understood." The trees are further stated to languish, the leaves turn yellow, and they perish shortly. The disease is contagious, soon spreading through the whole orchard; and if trees are brought from a sound nursery, and planted on the same land, they usually perish during the first season. And the infected soil cannot be again occupied as a peach orchard, until some years of intermediate cultivation. The only remedy I have heard of for the destruction of this disease, is to destroy at once the infectious trees, before the disease is communicated to the whole orchard; which according to Mr Prince of the Linnæan Botanic Garden, as stated in *Thacher's Orchardist*, is at the time the trees blossom in spring.

PRUNING, &c. — In our climate the peach is almost universally cultivated as a standard. They are rarely pruned at all; they are sometimes however, renovated by heading down; this operation should be performed just before the sap rises in spring. Trees are very rarely seen trained to walls, except occasionally, in the gardens of the opulent.

To render peach trees very productive, it has been recommended to shorten the new young wood in July, by cutting in a few inches; and the shoots proceeding from

these are to be shortened again during the course of the summer. This mode is favorable to the production of fruit buds, and the trees will produce more abundant crops the following year. This pruning or shortening may be most profitably performed with very large shears, with long handles, such as are used for clipping hedges; and I am persuaded that with such an instrument, a man might prune a great many trees in a day. [See *Introduction Section VIII. Subs. 4th.*] Mr Knight however, recommends to bend downwards the young and luxuriant shoots, instead of clipping, they thus produce the finest possible bearing wood for the second year. [See *Introduction Section VIII. Subs. 3.*]

With respect to trees trained to walls, Jean Pierre Savard at Montreuil, according to Loudon, varies the position of the branches every year, by elevating to a greater angle the weak, depressing the strong, cutting out old, naked, or useless shoots; thus presenting at all times a well balanced tree.

The inference is that these weakly shoots by being thus elevated, grow stronger; and the branches by being annually bent in alternate years, become more fruitful on the principles before explained. Girdling increases the size and hastens the maturity of the fruit; it should be performed as soon as the tree comes into leaf. Its effects, though surprising, are ultimately ruinous to the branch on which the operation is performed, yet it may be sometimes advantageously performed on alternate branches of the same tree in alternate years. And there are, I believe, certain cases, where a single crop of very early fruit will very far exceed the value of the tree. If fruit is desired of a large size, the trees must be thinned when the fruit is of the size of small gooseberries. The size may be thus increased without diminishing the quantity.

M. Noisette, according to Mr Neil, against one piece of low wall, places his peach trees five feet asunder, and trains them all obliquely, and in one direction, at an angle of 45° . The growth of wood being thus restrained, the fruitfulness is promoted and the tree falls suddenly into bearing, and bears abundantly.

NECTARINE. — (*Amygdalus Nectarina.*)

THE Nectarine has been assigned to Persia; it only differs from the peach in possessing a very smooth and glossy skin, and a pulp of a finer consistence. The French consider the nectarine, *Pêche lissé*, as one and the same fruit as the peach. It is esteemed, however, by some, more wholesome and delicious. According to some authorities its name is derived from *nectar*, which was supposed to be the favorite liquor which inspired the heathen gods.

CLASS I.

FREESTONE NECTARINES.

AROMATIC. Lindley.

A middle sized fruit, inclining to globular; deep red or blackish brown next the sun; the flesh pale straw, but red at the stone; juice of a rich vinous flavor. [Leaves R. Flowers S.]

EARLY VIOLET. Pom. Mag. Bon Jard. 1828.

VIOLETTE HATIVE, PETIT VIOLETTE HATIVE, of the French.

VIOLET, LORD SELBY'S ELRUGE, of the English.

The tree is productive. The Bon Jardinier classes this with Pavies. Its size generally medium; pale yellowish green but dark purplish red next the sun; flesh whitish yellow, but red next the stone, melting, juicy, rich, sweet, vinous, and excellent. August. [Leaves R. Flowers S.]

ELRUGE.

One of the very best of Nectarines; large, roundish oval, deep violet or blood color next the sun; flesh whitish, melting, very juicy, rich, and very high flavored. August. [Leaves R.]

FAIRCHILD'S EARLY. Lindley. Forsyth.

The fruit is very early, and very small; globular; yellow in the shade, deep scarlet next the sun; the flesh yellow, not juicy, but well flavored. [Leaves R. Flowers L.]

JAUNE LISSE/ or ROUSSANNE. Bon Jard. 1828.**SMOOTH YELLOW.**

A small fruit ; skin smooth, yellow, a little washed with red next the sun. Its flavor that of the apricot. It ripens very late at Paris, where it requires a warm exposition. [Leaves R. Flowers L.]

LEWIS'S NECTARINE.

A fine new variety, raised from the stone of a peach by Mr Lewis of Boston. A beautiful fruit of middle size, heart-shaped ; bright yellow, but intense red mottled next the sun ; flesh of a fine orange color, firm, sweet ; flavor very pleasant and peculiar.

PERKINS'S SEEDLING.

A seedling raised by S. G. Perkins, Esq. from the Lewis's Nectarine. A very beautiful, fine fruit, globular, bright yellow, but of a dark purple crimson next the sun.

PITMASTON ORANGE NECTARINE. Lond. Hort.**Trans.**

A new and beautiful fruit of good size, globular or heart-shaped, pointed ; of a fine yellow color, but dark crimson or purple next the sun. Flesh golden yellow, but red next the stone ; melting, juicy, saccharine, high flavored.

SCARLET. For. Lindley.

A middle sized fruit, rather ovate, of a fine deep scarlet next the sun ; the flesh greenish white, but red at the stone ; saccharine and well flavored. [Leaves R. Flowers S.]

TEMPLE'S. For. Lindley.

A fruit below medium size, rather oblong ; of a pale red color next the sun ; the flesh white ; it shrivels at maturity ; very juicy, rich, and of fine flavor. [Leaves R. Flowers S.]

WHITE OR FLANDERS NECTARINE. Pom. Mag.**-Hooker. Lind.****NEW WHITE, EMMERSON'S NEW WHITE. Lind. P. Mag.**

A middle sized, roundish, very pale fruit, slightly tinged with red next the sun. Flesh tender and juicy with a fine vinous flavor. The Pomological Magazine describes this as a clingstone ; Lindley as a freestone. [Leaves R. Flowers L.]

CLASS II.

CLINGSTONES OR PAVIES.

VIOLETTE CERISE. N. Duh. Bon Jard.

The flowers are small and delicate. A very small fruit, the size of a Green Gage plum; very beautiful, of a fine cherry red next the sun—good, but not high flavored. [Leaves R. Flowers S.]

GOLDEN. For. Lindley.

Rather large, globular, ovate, orange in the shade, bright scarlet, marked with deep red next the sun. Flesh firm, yellow, pale red at the stone, and of good flavor. [Leaves R. Flowers S.]

GROSSE VIOLETTE. Bon Jard. p. 298.

VIOLETTE DE COURSON. BRUGNON **GROSSE VIOLETTE.** Ib.

The fruit rather larger and its flavor less vinous than the *Violette Hative*, (*Early Violet*.) Its skin is more marbled and washed with violet red. Its maturity is also later; it is the 15th Sept. at Paris. [Leaves R. Flowers S.]

ITALIAN. Lindley. Forsyth.

BRUGNON. For.

A large, globular, pale yellow fruit, marked with dark red next the sun; of a firm yellow flesh, red at the stone, juicy, rich, and good. It may ripen here in August. [Leaves R. Flowers S.]

RED ROMAN. Lindley. For.

A very large globular fruit, dark red or purple next the sun, yellowish in the shade; flesh yellowish, but red next the stone; juicy, saccharine, and vinous. Early in Sept. [Leaves R. Flowers L.]

SCARLET NEWINGTON. Lind. For.

NEWINGTON, LATE NEWINGTON.

The fruit is rather large, globular, fine yellow, but bright red marbled next the sun; of a firm pale yellow flesh, but red at the stone; juicy, rich, sweet, vinous, and excellent. Early in Sept. [Leaves S. Flowers L.]

TAWNY NEWINGTON. Lindley.

Pretty large, somewhat ovate; tawny colored, marbled with dull red or orange next the sun; flesh pale yellow, but red at the stone; very juicy, sugary, and of a most

delicious flavor. This may ripen here early in August. [Leaves S. Flowers L.]

VERMASH. Hooker. Pom. Lond. Pl. xxix.

Not the *Vermash* or *Peterborough* of Mr Forsyth. The tree is very fertile; a small, roundish fruit; skin very smooth, intense red next the sun; flesh white, but red at the stone, of a high delicate flavor, melting, juicy, sweet, relieved by an agreeable acid. Esteemed by Mr Padley, one of the best known; it succeeds the Early Violet. [Flowers L.]

VIOLET MUSK. Bon Jard.

BRUGNON VIOLET MUSQUE'E, BRUGNON MUSQUE. Ib.

RED ROMAN of Forsyth.

The fruit is as large as the *Grosse Violette*, but brighter and of a more lively red next the sun; the skin very smooth, amber color in the shade; the flesh yellow, but red at the stone; saccharine, vinous, musky. Sept. [Leaves R. Flowers L.]

CULTIVATION.

The nectarine, owing to the smoothness of its skin, is, like the plum, extremely liable to the destructive attacks of the *curculio*. For the preventives, see *Curculio*, in the former part of this work. The soil, cultivation, uses, &c. are the same as the peach. They are usually inoculated on the nectarine, plum, or peach stock.

A L M O N D . — (*Amygdalus*.)

THE almond, according to the best authorities, is a native of Asia. It is extensively cultivated in the south of Europe and Barbary, as a fruit tree, for its kernel, both for domestic use and for exportation. The tree bears a striking resemblance to the peach; the leaves, also, much re-

semble those of the peach, but are more smooth, and of a bright shining green, their lower serratures are glandular. The sweet almonds are used for the dessert, for confectionary, and for perfumery. The bitter almonds are used in medicine. They abound in prussic acid, and form the basis of the delicious cordial called *Crème de Noyeau*. This liquor, however, is also made of the kernels of the peach. (*See Peach.*) The common almond and the hard shelled sweet almond, are planted principally as stocks for the inoculation of the better varieties of almonds and the peach. The almond is enveloped in a pulp of ordinary flavor. The principal kinds recommended by the best authorities are the following :

SWEET SOFT SHELLED ALMOND. Lind.

AMANDE SULTAN A COQUE TENDRE.

The shell is large, about an inch and a half in length ; it is flattened on one side, and rounded on the other ; it is smooth and tender : the kernel is sweet and good. This sort is said to be much cultivated in France for food.

AMANDE PRINCESSE, OU DES DAMES. Bon Jard.

AMANDE DES DAMES. N. Duh. Pl. LXXV.

The fruit is two inches in length ; the shell is oval, and over an inch in length ; it is soft and porous, the kernel is soft, sweet, and excellent. This is said to be much cultivated in the south of France for exportation. This fruit is recommended as one of the best for cultivation.

AMANDE SULTAN.

This variety much resembles the Amande Princesse, but is not so large.

AMANDE PISTACHE,

Resembles the Amande Princesse, but is of small size.

BITTER ALMOND.

AMANDE AMERE.

Of this variety there are several ; the two principal which are enumerated, are the following :

BITTER SOFT SHELLED ALMOND.

AMANDE AMERE A COQUE TENDRE.

BITTER HARD SHELLED ALMOND.

AMANDE AMERE A COQUE DURE.

PEACH ALMOND.

AMANDE PECHER.

These are hybrids, produced between the almond and

peach ; some are large, juicy, but of bitter flavor ; some are tolerable for eating, with sweet kernels.

GREAT FLOWERING ALMOND.

AMANDIER A GRAND FLEUR. N. Duh. Pl. CCCLXXXII.

" This new variety originated at the Luxembourg ; the tree is of fine form ; its bark shining, its leaves large ; the flowers are superb, of a beautiful white, and two inches in diameter. The fruit is small, oval, obtuse, downy ; its shell very hard, the kernel plump, sweet, and good. Nothing is more beautiful than this almond in spring ; it merits a distinguished place among the trees of ornament."

DWARF DOUBLE FLOWERING ALMOND.

AMANDIER DE GE'ORGIE. N. Duh. Pl. XCH.

This is one of the most ornamental of all shrubs ; it blossoms very early in spring, and the whole young wood is covered with the red blossoms which are extremely double and resemble small roses ; their diameter is about an inch. This variety has some single blossoms which produce a fruit which is oblong, pointed, and about an inch and a quarter in length ; its skin green and downy ; it contains an almond which is bitter.

CULTIVATION.

The varieties of almond are propagated by inoculation, either on the native stocks of the common almond, or on stocks of the peach or plum. Their cultivation is the same as that prescribed for the peach ; they are equally as hardy.

APRICOT. (*Armeniaca.*)

THE Apricot is a low tree, of very irregular growth ; the leaves are broad, roundish, pointed, glandular, serrated ; their petioles tinged with red ; the flowers are sessile, of a white color, tinged with red ; they appear very early ; the

fruit is round, its color varying from white to yellow, and red : it somewhat resembles a peach, but its flesh is firmer ; its hard smooth compressed stone resembles that of a plum. It ripens in July in the latitude of Boston.

According to Phillips, it may derive its name from *Præcox* or *early* fruit ; or by corruption a *præcox*, hence *Apricock* or *Apricot*. Its native place has been assigned to Armenia ; M. L. Legnier however asserts, says Phillips, that it is not known to grow in the natural state in any part of Armenia. The inhabitants of the deserts called Oasis, gather and dry large quantities of Apricots which they bring down to Egypt for sale ; it there grows spontaneously ; hence Legnier assigns it to Arabia. Pallas states it to be a native of Caucasus, the mountains there being covered with it to their tops. Grosier says it covers the barren mountains west of Pekin. (*Phillips*.) Regnier and Sickler, says Loudon, assign it a parallel between the Niger and Atlas.

Uses.—As a dessert fruit, the Apricot is esteemed next to the Peach ; it is also esteemed a most superior fruit when used in pastry, for marmalade, jellies and preserves ; it is also stated to make a delicious *liqueur*. In France and Germany, according to Dr Willich, the Orange Apricot is usually preserved in a dried state for winter, when they form a delicious ingredient in pies, tarts, &c. The Chinese, we are told, form lozenges from the clarified juice, which dissolved in water, yield a cool refreshing beverage. Oil is also extracted from the kernel ; and Loudon informs us, that the young shoots yield a fine golden-cinnamon color to wool.

VARIETIES.

ALBERGE APRICOT. Bon Jard.

A large tree and very productive ; the flesh is melting, vinous, and excellent for preserving. The kernel is large and bitter. Early in August. There are two varieties, superior in size and flavor ; that of *Montgamet* and of *Tours*.

ALGIERS. For.

An oval fruit, flattened or compressed, of a straw color ; juicy, and high flavored.

ANGOUMOIS. Lind. Bon Jard. p. 305.

PURPLE ABRICOT. Lind. ALEXANDRIAN. Ib.

ABRICOT VIOLETTE, Lux. Cat.

BLACK APRICOT. For.

A small, globular, downy fruit, a little oblong; of a pale red color, becoming deep red or purple next the sun; the flesh pale red, but orange next the stone, a little acid, but good, with a strong odor; the kernel is sweet, and the fruit looks at a little distance like an Orleans plum. Early in July.

BRUSSELS. For.

Highly esteemed for its productiveness. A middle sized fruit, of a red color next the sun, covered with numerous dark spots; the flesh is yellow, and of a brisk flavor. It separates from the stone; the kernel is bitter.

BLACK APRICOT.

VIOLET APRICOT, PRUNUS DASICARPUS.

ABRICOT NOIR, ABRICOT DU PAPE (Pope), Bon Jard.

It resembles a plum tree. I cannot recommend it; I suspect it is a poor bearer. Fruit small, the color of the lees of deep colored wine; flesh obscure fiery red; below mediocrity. August. Said to be from Siberia.

CRUFT'S LATE APRICOT.

A large and very superior fruit which lately originated in the garden of Edward Cruft, Esq., in Boston. Very rich, juicy, sweet; and, in the opinion of the best of judges, a variety of surpassing excellence. August 15.

EARLY MASCULINE. Bon Jard.

ABRICOTIN, ABRICOT PRECOCE, ABRICOT HATIF MUSQUE, of the French.

RED MASCULINE. Lind.

A small nearly globular fruit, vermilion color next the sun, yellowish in the shade; the flesh is yellowish, of medium quality; flavor musky, kernel bitter; its chief merit is its early maturity. Beginning of July.

GROS MUSCH. Bon Jard. p. 306.

The tree is vigorous; the fruit perfumed; on one side deeply grooved, it is contracted on the other; a freestone; the kernel is sweet. July.

HEMSKIRKE. Pom. Mag.

Origin unknown; it bears freely, ripening early, of a high luscious flavor, superior even to that of the Moorpark. Middle sized, roundish, slightly compressed; its color and

form that of the Moorpark; flesh bright deep orange; tender, juicy, with a particularly rich, delicate flavor, resembling that of the Green Gage plum; kernel sweet. July.

MOORPARK. Hooker's Pom. Lond.

ANSON'S, TEMPLE'S, DUNMORE'S BREDA, Ib.

The tree is extraordinary productive; the fruit is very large, of a bright orange, or gold color, with dark spots next the sun; flesh orange color, melting and excellent; the stone is large; there is a pervious longitudinal passage through it, through which a needle may be passed. It is in the edge of the stone, a little aside from the centre.

MUSCH MUSCH. Bon Jard.

Brought a few years since from the city of Musch, on the frontiers of Turkey, on the side of Persia. It is round, deep yellow, remarkable for the transparency of its pulp, through which the stone is visible; the flesh is very fine and agreeable. Early in July.

ORANGE. Lindley.

EARLY ORANGE, ROYAL ORANGE, ROYAL GEORGE.

The fruit is larger than the Masculine, roundish; color orange, spotted with red or dark purple next the sun; the flesh deep orange, succulent and well flavored; not perfectly a freestone; kernel sweet.

PEACH APRICOT. N. Duh. Pl. CIV. Bon Jard.

APRICOT PECHE. Ib. DE NANCY.

The best and the largest of all apricots; form variable, generally flattened; skin slightly downy; of a fawn color next the sun, with reddish spots; flesh fawn color, yellow, melting, excellent; neither dry nor clammy like most apricots; juice abundant, high flavored, peculiar. Excellent. Early in August. All authors concur in this description.

PORTUGAL. Bon Jard.

APRICOT DE PORTUGAL, OR MALE, Bon Jard.

A small globular fruit; flesh melting and good. Aug.

PROVENCE. Bon Jard.

A small fruit; flesh yellow, sometimes a little dry, but of a sweet vinous flavor; stone rugged; kernel sweet. July.

ROMAN. Pom. Mag. Lindley. Bon Jard.

APRICOT COMMUN, Bon Jard.

BLOTCHED LEAVED TURKEY, Lind. and Pom. Mag.

A vigorous tree, a large fruit in well cultivated ground, superior to the Angoumois, but insipid when too ripe; kernel bitter. July. A productive variety.

ROYAL. Bon Jard. Pom. Mag.

A new variety, obtained at the Luxembourg; better than the peach apricot. The fruit is next in size to the Moorpark; rather oval, compressed; dull yellow, slightly red; the flesh pale orange, firm, juicy, sweet, and high flavored, with a slight acid; kernel slightly bitter.

ROYAL PERSIAN. Hort. Soc. Cat. Bon Jard.

BREDA, Hort. Soc. Cat.

HOLLANDE, AMANDE AVELINE, Bon Jard.

This fruit is small; flesh yellow, melting, vinous, having the taste of the Aveline or Filbert; kernel sweet. July.

TURKEY. Pom. Mag.

LARGE TURKEY. Hooker's Pom. Lond.

"An excellent apricot scarcely known," little inferior to the Moorpark. Fruit middle sized, very handsome, deep yellow, with rich orange red blotches next the sun; the form globular; the flesh yellow, firm, juicy, sweet, with a little acid, very rich and excellent; a freestone; kernel sweet as an almond.

WHITE APRICOT. Bon Jard.

ABRICOT BLANC, Bon Jard.

The flesh is whiter than the Angoumois, and better, having a little of the flavor of the Peach. It ripens a little after the Early Masculine.

CULTIVATION.

The Apricot is generally inoculated either on the apricot, plum or peach stock; the soil, and the maladies to which they are sometimes subject are similar to the peach, but from the smooth skin which they possess they are more liable to the attacks of the Curculio. For the preventives see *Curculio*, in the former part of this work.

SOIL, &c.—The aprecot requires a rich black mould. They will not flourish in a sandy, gravelly, or cold damp soil. The distances asunder to which they ought to be set, and their cultivation is similar to that of the peach.

PLUM.—(*Prunus*.)

THE plum tree rises to a height of from fifteen to eighteen feet, with moderately spreading branches. The leaves are ovate, serrated; the petioles short; the flowers are white. The fruit is a drupe; its color varying from white or yellow to red, to blue or to black — the pulp is sweet or subacid — the stone smooth, ovate, pointed, compressed. Mr Knight and others consider the Sloe Plum (*P. spinosa*) as the parent, not only of the Bullace (*P. insititia*) but of all the varieties of the English plums (*P. domestica*.) The plum tree is supposed to be originally from Asia, but is also found growing in a wild state in North America. It is more hardy than the peach, as it flourishes in Canada; from the confines of the tropics, to high northern latitudes.

USES.—The finest varieties are esteemed a delicious desert fruit; the more ordinary varieties are used for pies, tarts, preserves, &c. The Perdrigons, the Quetsches or prunes, are dried, and in this state may be long preserved; they are imported, principally from Spain, Portugal, and Marseilles. Prunes are deemed extremely wholesome food, and possessed of considerable medicinal efficacy. In the preparation of prunes, the perfectly ripe and sound fruit is arranged singly, and without being allowed to touch each other, on plates of tin or iron; these are placed in an oven after the bread is taken out, and they are occasionally moved or turned. — When taken from the oven, if not sufficiently dry, they are exposed to the influence of the sun, and when cold, they are packed in boxes. Prunes may be made, even of any kind of plum. *Brignoles*, are prepared in Provence from the Perdrigons, which possess a very sweet taste. — The skins being first separated by a momentary immersion in boiling water, and the stones being extracted, they are afterwards dried and preserved in the same manner as prunes.

Ripe plums are deemed wholesome, if eaten in moderate quantities; but unripe plums are extremely unwholesome, more so it is said than any other kind of unripe fruit, producing dysentery, &c. The plum is said also to be capable of producing a good wine; good brandy is also procured from it by distillation. Plums and peaches, it is asserted,

may be preserved a year, by placing them in earthen vessels as soon as gathered from the tree; equal parts of honey and spring water, intimately incorporated, to be poured over them, and the vessels closely covered. The wood of this tree is beautifully veined; it is therefore stated on good authority, to be highly prized by turners, cabinet makers, and for making musical instruments.

VARIETIES.

APRICOT PLUM.

PRUNE ABRICOTE', PRUNE ABRICOTE'E DE TOURS.

The fruit is large, globular, depressed, divided by a deep suture; whitish yellow, but faint red next the sun, and covered with bloom; the flesh is firm, juicy, sweet, musky and excellent. It ripens in August.

BANKER'S GAGE. Buel.

This plum originated in New York. A fruit of fine size and of delicious flavor and admirably calculated for drying.

BELLE OF RIOM. N. Duh. Pl. cccxci.

Roundish oval, flattened at its base; its height sixteen or seventeen lines; skin bright red, marbled with yellow and covered with violet bloom; flesh yellow, firm, but melting and very good; juice very sweet. A new and excellent fruit, will probably ripen here the middle of August.

BINGHAM.

This plum is said to be large; its color yellow; form oblong; quality very rich and excellent.

BLEECKER'S GAGE.

This plum is stated to have been raised by the Rev. Mr Bleecker, of Albany, from the stone of a German prune; a large globular fruit, of excellent quality; a great bearer.

BLUE GAGE. Col. Carr.

Very productive. The fruit is of medium size; round, of a blue color, of an extremely sweet fine flavor. A native fruit raised from the Reine Claude; it hangs long on the tree and is deservedly worthy of cultivation.

***BLUE HOLLAND.** R. M.

A round plum of a blue color, juicy and high flavored; it readily parts from the stone; it ripens in September and hangs long on the tree after arriving at maturity. A fine fruit and a great bearer.

BLUE NOVEMBER GAGE. Corse in N. E. Farmer.

"This fruit is extraordinary for its late ripening and the length of time it will remain upon the tree; it is of a good flavor, of medium size, and very productive."

***BREVOORT'S PURPLE BOLMER.**

BREVOORT'S PURPLE WASHINGTON.

From all accounts which I have received, the fruit is large oval; of a blue color covered with azure bloom; the flesh adheres to the stone and is of a sweet and delicious flavor. A new and superior variety; the tree very thrifty; leaves like the Washington.

CHERRY PLUM.

MIRABOLAN, of the French.

A native fruit, small, heart-shaped, the skinsmooth, of a bright red color; the flesh yellow, tender, juicy, pleasant; not very highly esteemed except for its beauty; good for cooking; it ripens early in August.

***COE'S GOLDEN DROP.**

COE'S SEEDLING, BURY SEEDLING. Ib.

The leaves are large, of a dark shining green: a new variety sent by Mr Knight in 1823 to the Hon. John Lowell. It is stated to be a good bearer. And the fruit has been produced with us as described. It is oblong and rather bell-shaped; two to two and a half inches long, but less in breadth; of a greenish yellow color, and spotted next the sun with violet and crimson; flesh gold color; of delicious flavor; superior it is stated to any late plum cultivated in Britain; not at all inferior in richness of flavor even to the very best of all.

COOPER'S PLUM. Cox. Pom. Mag.

LA DELICIEUSE. Ib. COOPER'S RED.

Raised by Mr Joseph Cooper, of New Jersey, from a stone of the Orleans; it is very large, rather oblong, dark purple next the sun; the flesh yellowish green, very rich, juicy and delicious. Mr Cox informs us "that it makes an exquisite preserve if deprived of its skin before too ripe. The tree grows vigorously and the fruit is liable to perish.

CORSE'S ADMIRAL. Corse in N. E. Farmer.

Raised by Henry Corse, Esq. of Montreal. "The color of this fruit is dark purple, about the size of the Magnum Bonum or Yellow Egg, but of good flavor"—"very productive and excellent."

CORSE'S FIELD MARSHAL. Corse in N. E. Farmer.

Raised by Henry Corse, Esq. of Montreal. "This plum is about the size of the Admiral and bright red; the most showy plum that I have ever seen, and of good flavor"—"very productive and excellent."

CORSE'S NOTA BENA. Corse in N. E. Farmer.

This plum was raised by Henry Corse, Esq. of Montreal. This variety he considers the most superior of all he has raised, and very productive.

CORSE'S RISING SUN. Corse in the N. E. Farmer.

Raised by Henry Corse, Esq. of Montreal. "This fruit is about the size of the Bingham; bright yellow, with a tinge of red next the sun;"—"very productive and excellent."

DAMAS DE MAUGERON. N. Duh. Pl. xxix.

The fruit is large, nearly round, depressed; its breadth eighteen lines; the skin brownish red, covered thick with azure bloom; the flesh is firm, yellowish; juice agreeable and sweet; an excellent plum. August.

DAMAS DE PROVENCE. N. Duh. Pl. lxxv.

The fruit is roundish, a little oblong; its height eighteen to twentytwo lines; skin reddish violet, covered with thick bloom; the flesh yellowish, tolerably high flavored; juice sweet. This plum is one of the earliest; it ripens a month earlier than the Royale de Tours. Its early maturity and beauty renders it worthy a distinguished place; but its quality is but third rate.

DAME AUBERT. N. Duh. Pl. lxxi.

GROS LUISANTE, WENTWORTH.

A tree exceeding all others in the vigor of its growth, and the size of its leaves; the fruit is very large, elliptical; skin thick, yellow, covered with bloom; the flesh yellow, coarse grained, adhering to the stone; juice sweet, but vapid if too mature; a plum admired for its size and beauty but only fit for cooking. September.

DAMSON.

A very small, oval, dark blue fruit, covered with light blue bloom; the flesh very acid; and fit only for cooking and preserves; the tree is of feeble growth. Very late.

DIAMOND PLUM. Loudon's Mag. vol. iii. p. 215.

The diamond plum is perhaps the largest plum known.

In form and flavor it resembles the *Magnum Bonum*, but its flavor is perhaps rather superior; color dark purple. The tree grows vigorously and in orchards would form a fine contrast to the *White Magnum Bonums*. The tree sprung from the seed, in the nursery of Mr Hooker, in Kent.

DIAPRE'E ROUGE. N. Duh. Pl. LV.

RED DIAPRE'E.

The fruit is the most beautiful known. We have seen larger, but never such beautiful colors. Form oval, two inches and one third in length, a little pear shaped; color dull red, covered with azure bloom; flesh yellow, coarse grained, musky. August. Always esteemed for its size and beauty; it makes excellent prunes.

DOWNTON IMPERATRICE. Hort. Trans.

Raised by Mr Knight from the seed of the *White Magnum Bonum* and pollen of the *Blue Imperatrice*. In shape like the *Blue Imperatrice*, but larger. Skin dark yellow, very thin; flesh yellow, soft, juicy, with a high flavored acidity. All characteristics of much excellence.

***DUANE'S PURPLE FRENCH.**

The tree is extremely vigorous in growth; a remarkably large fruit, of most superior quality; imported by Mr Duane, of New York. Original name lost.

EARLY MONSIEUR.

MONSIEUR HATIF, Duh.

A globular fruit, of medium size, of a violet or deep purple color next the sun; and covered with a dense bloom; the flesh is yellowish, melting, juicy and good. July.

EARLY YELLOW.

WHITE PRIMORDIAN, of the English.

JAUNE HATIVE, PRUNE DE CATALOGNE, Duh.

Small, oblong, whitish yellow; the flesh is rather dry, sweet, and musky. One of the very earliest plums, ripening in July. It is chiefly valued on this account.

***GERMAN PRUNE.**

A large and very oblong fruit, bell shaped, of a blue color; flesh yellow, very juicy, sweet and delicious. It ripens the last of August, and continues on the tree till winter; and shrivels till it becomes quite dry. A fine fruit.

GOLIAH. Hort. Trans.

ST CLOUD, of some collections.

This fruit is remarkably large, some weighing four

ounces; compressed; the skin is a deep reddish purple; the flesh pale, firm, and well flavored, but not rich. It is very useful for cooking. Ripe early in September. Lindley says it is a great bearer, and a very handsome plum.

***GREEN GAGE.**

GREAT QUEEN CLAUDIA, of the English.

GROSSE REINE CLAUDE, DAUPHINE, ABRICOTE VERT.

A middle sized round fruit, of a yellowish green color, of a purplish russetty red next the sun; melting, juicy, and of delicious flavor. Last of August. Lindley informs us that the name of Gage, was derived from the circumstance of the Reine Claude being sent from France to the Gage family, with the name obliterated; and through ignorance of the real name, it was called *Green Gage*.

GROS DAMAS ROUGE TARDIF. N. Duh. Pl. cccxciv.

LARGE LATE RED DAMASK.

The fruit is very handsome, oval; its height twenty lines; skin thick, hard, bright red, covered with azure bloom; the flesh yellow and melting; juice sweet and good. This fine fruit will probably ripen here the last of August.

GROSSE MIRABELLE. Bon Jard.

The tree is of irregular and confused growth; the fruit is nearly globular, of a yellow color, with points of red; melting, sweet, very good. Early in August.

HULING'S SUPERB.

Said to be identical with a new plum known at Philadelphia, as the *Keiser*. It is described as extraordinary large, of a globular form, resembling in this last respect and its color, the Green Gage, but far exceeding it in size; a first rate fruit, sweet and very fine flavored.

IMPERATRICE. Hooker's Pom. Lond. Pl. iv.

A medium sized, and rather long fruit, pointed at the base, rounded or broad oval at the summit; the skin is fine violet, covered with bloom; flesh yellowish next the sun, a little firm, at maturity very rich and sweet. One of the best of late plums.

IMPERIAL DIADEM. Hort. Trans.

"This new plum is a large regular oval, of the character of the Red Magnum Bonum; deeply cleft; of a pale red color; of good flavor and highly perfumed; its size and beauty will recommend it to notice. It is also admirably adapted for culinary purposes."

***ITALIAN DAMASK.**

DAMAS D'ITALIE, Duhamel.

This fruit is rather large; globular, a little flattened at the base; blue or violet next the sun, and covered with pale blue bloom; the flesh is yellow, sweet and high flavored and separates from the stone. August. This variety is beautiful, and extremely productive.

ITALIAN PRUNE.

QUETSCHÉ D'ITALIE.

This variety, according to Messrs Parmentier and Chew, is not only a most valuable plum for drying, but in Italy is esteemed a most superior fruit, when gathered at maturity.

JERUSALEM. N. Duh. Pl. cccchii.

The tree is vigorous; and extraordinary productive; the fruit, one of the most beautiful known; it is oval, roundish, depressed; its diameter twenty lines; the skin thick, blue next the sun, and covered with deep blue bloom; the flesh yellowish, coarse grained, but melting; juice abundant, high flavored and sweet. August.

KIRK'S PLUM. Lindley.

Branches smooth; the fruit is rather large, roundish oval, broadest at the base; skin dark purple, covered with a copious azure bloom, which is difficult to remove; flesh greenish yellow, firm, juicy, rich, and separates from the stone. A very handsome variety, and most excellent bearer; supposed to be of foreign origin. August.

***LARGE SWEET DAMSON.**

HORSE PLUM.

A large round fruit, of a dark blue color, covered with bloom; the flesh firm, yellowish green, juicy, sweet and good; it adheres to the stone; the tree is productive.

***LEX PLUM. R. M.**

A large blue plum; the flesh is yellow, rich and sweet. An excellent fruit and very productive.

LUCOMBE'S NONSUCH. Pom. Mag. t. 99. Lindley.

This plum is large and compressed at summit and base, its breadth two inches; its color at maturity as well as form, resembles the Green Gage, but more streaked with yellow or orange; the flesh and quality inferior to the last named variety, but superior to the Orleans. A remarkably handsome, productive and valuable new variety. August.

MIMMS. Pom. Mag. t. 6. Hort. Trans. vol. iv. p. 208.

The fruit is very large, a little oblong, its diameter two inches and a half; of a bright purple next the sun, and covered with thick bloom; its flesh is yellowish green; tender, juicy, and very agreeably flavored; resembling in this respect the Orleans. It separates from the stone, which is ragged. A late plum, of the largest size.

MONSIEUR. N. Duh. Pl. CCXLII.

PRUNE DE MONSIEUR. Ibid.

A handsome fruit, depressed, its diameter from fifteen to twenty lines; violet red, covered with azure bloom; the flesh green or yellowish, melting; juice sweet, sometimes very agreeable. It parts from the stone, and ripens twelve or fifteen days after the *Monsieur Hâtif*. July.

MOROCCO.

BLACK MOROCCO, EARLY MOROCCO, BLACK DAMASCUS, EARLY BLACK DAMASK, according to the Pom. Mag.

A blackish purple fruit of medium size, covered with pale blue bloom; globular, a little depressed; the flesh greenish yellow, juice rich, and high flavored; a productive fruit. July.

NECTARINE PLUM. N. Duh.

PRUNE PE'CHE. Ib. Pl. CVII. CALEDONIAN, HOWEL'S, Lind.

One of the most beautiful plums known; round, a little lengthened, the height two inches; the skin varies from red to deep red; it is covered with azure bloom; the flesh yellowish, coarse grained, astringent; juice abundant, mild; a superb fruit, it only needs a finer flesh. It ripens in July.

***ORLEANS.** R. M.

DAMAS ROUGE, of the French. **RED DAMASK.**

A middle sized fruit, globular; of a red color, but blue or purple next the sun; and covered with bloom; the flesh is pale yellow, juicy, rich and astringent, and readily parts from the stone. A fine fruit and a good bearer; it ripens in August.

PETER'S LARGE YELLOW GAGE.

A variety of the Gage, approaching in its size to the Washington, and much resembling it in quality.

PRECOCE DE TOURS. Hooker's Pom. Lond.

EARLY DE TOURS. Ib.

The tree is vigorous and fertile; the fruit the best *early* variety in Britain. It is small, oval, dark purple, covered with fine bloom; flesh greenish yellow, tender, juicy, of

very agreeable flavor. July. But the Bon Jardinier calls it ordinary. "Fruit the form of an egg, very productive." (*N. Duh.*)

***POND'S PURPLE.**

A large round purple plum of a sweet and fine flavor. It ripens early in August, and was so named by the committee of the Massachusetts Horticultural Society, for Mr Samuel Pond of Cambridge, who has introduced this new native kind to notice.

***PRINCE'S IMPERIAL GAGE.**

This plum is a first rate fruit; the tree is very vigorous and upright in its growth, and extraordinary productive. The fruit is larger than the Green Gage, and of excellent quality. A single tree of this variety at Charlestown, owned by Mr Samuel R. Johnson, has for several successive years, yielded crops, which were sold at from \$40 to \$50 per annum. This valuable variety was raised by Wm. Prince, Esq., of the Linnæan Botanic Garden, Flushing, from a seed of the Green Gage.

RED GAGE. Col. Carr.

The tree grows vigorously; the fruit is of a greenish, yellow color in the shade, but of a deep red next the sun. A very luscious fruit raised from the Reine Claude.

RED MAGNUM BONUM.

IMPERIAL VIOLETTE, of the French.

A large, oval plum, two inches to two and a half in length; deep red next the sun and covered with blue bloom; the flesh is yellowish, harsh, acid. It parts from the stone, which is sharp pointed. Good for cooking and fit for little else. August.

RED PERDRIGON. Lindley. Dr Willich.

An excellent plum of the first class; middle sized, roundish oval, of a fine red color, with gold dots and a fine bloom; flesh bright yellow, transparent; juice sweet and delicious. Peeled and dried it makes excellent prunes; not inferior to the White Perdrigon. August.

***RED QUEEN MOTHER.** R. M.

A large plum; of a bright red color, covered with pale bloom; the flesh is yellow, sweet and excellent; it ripens in September. This is a very handsome and productive variety and highly deserving of cultivation. The origin of this fruit is unknown. — It may prove the *Isabella*.

REINE CLAUDE VIOLETTE. Loudon's Mag.

PURPLE GAGE. VIOLETTE QUEEN CLAUDIA.

A new seedling variety of the Green Gage, of a purple color, equally good, and a better bearer. It hangs longer on the tree and is the best red plum we have. The Pomological Magazine confirms this account, and adds, that it is not, like the Green Gage, disposed to crack.

ROYALE. N. Duh. Pl. CCXLII.

LA ROYALE, of Hooker's Pom. Lond.

A large, very handsome fruit, diameter eight lines; the skin thick, of a homely dull brown red, concealed however by a thick violet or azure bloom; the flesh fine, yellowish green, firm and cracking; juice abundant, high flavored and delicious. An excellent plum. September.

***ROYALE DE TOURS.** N. Duh. Pl. XIII.

The fruit is globular, flattened; its length eighteen lines; a red violet next the sun and covered with azure bloom; the flesh is yellow, fine, good; juice abundant and sweet; high flavored and of superior quality to the Monsieur plum; and it ripens eight or ten days earlier. July and August.

***ST CATHERINE.** Hooker's Pom. Lond. Pl. XXIV.

A medium sized, oblong fruit; narrowest towards the stalk, broad and flattened at the summit; of a bright gold color next the sun, spotted with red, and covered with bloom; the flesh yellow, tender, sweet, and of fine flavor; stone oval, flat, it separates from the flesh. It ripens a little before the Imperatrice. Not uncommon around Boston.

***SEMIANA.**

PRUNE SUISE, N. Duh.

PRUNE D'ALTESSE, MONSIEUR TARDIF.

The fruit is very handsome, round, flattened; its diameter eighteen to twenty lines; color varying from bright violet to deep blackish blue, and covered with azure bloom; the flesh greenish yellow, cracking and melting, juice very abundant and delicious. Not uncommon near Boston. An excellent fruit, ripening in September.

***SMITH'S ORLEANS.**

The tree is very vigorous and productive; the fruit is large, of an oval form and purple color; its flavor excellent; a highly esteemed variety.

SURPASSE MONSIEUR. Bon Jard. p. 308.

"This superb fruit was raised by M. Noisette. It is more beautiful and more perfumed than the Monsieur."

VARIEGATED PLUM. N. E. Farmer.

An imported variety, sometimes called *Lombard Plum*, name lost. Specimens were sent to Mr Russell, August 18, 1830, from Major E. Edwards of Springfield, Mass. A remarkably large fruit; beautiful and very productive. Very showy and saleable, but not high flavored.

VIRGINALE. N. Duh. Pl. xxxv.

The tree is strong, vigorous and productive; the fruit is round, slightly depressed; its color yellowish, touched with violet or rose next the sun, and covered with dense bloom; the flesh is melting, juice abundant and very agreeable. It adheres to the stone. One of the best of plums.

***WASHINGTON.**

BOLMER'S WASHINGTON. FRANKLIN.

A very large globular plum, inclining to oval; greenish yellow next the sun, approaching to pale orange; and covered with a bloom and occasionally crimson specks; this plum has sometimes weighed over four ounces; its flesh is yellow, and firm, sweet and delicious; it parts readily from the stone and ripens in September. This plum is equal in flavor to the Green Gage, and a very valuable variety of American origin.

WHITE MAGNUM BONUM.

IMPERIALE BLANCHE, Duh. Egg Plum.

WHITE MOGUL, WHITE HOLLAND, of the English.

An oval fruit of extraordinary size; of a yellow color covered with pale bloom; the flesh yellow, firm, acid and austere; it adheres to the stone which is oval, and very pointed. This plum is excellent for cooking or preserves, and suitable for nothing else. Early in September.

WHITE PERDRIGON.

Branches downy; a middle sized oblong fruit, tapering from the stalk; of a pale yellow, with red spots next the sun; and covered with white bloom; flesh yellow, rich, saccharine, separating from the stone. Last of August.

WILMOT'S NEW EARLY ORLEANS. Mr Hooker,
in Hort. Trans. vol. III. p. 392.

Raised by Mr John Wilmot. Earlier than the *New Orleans*; as early as the *Morocco*, and *Precoce de Tours*, as large as the *Old Orleans*, and more juicy; a certain bearer; a fruit above the middle size, round, its suture deep;

dark purple next the sun and covered with bloom; the flesh greenish yellow, of excellent flavor, sweet combined with a pleasant acid; it separates from the stone. Mr Hooker considers this plum as decidedly superior to any of its season at present cultivated. Its beautiful appearance will obtain it a preference in the market.

SLOE. London.

PRUNUS SPINOSA.

A thorny tree, a wild plum of Britain. The fruit is small, very black and astringent. The ripe fruit is excellent to preserve; unripe, the inspissated juice forms the German *acacia*, and affords an ink, almost indelible for marking on linen. The juice is used mixed with various wines, to communicate the dark red color, and rough taste of port wine. The leaves are employed to adulterate the tea of China.

CULTIVATION, &c.

The plum tree flourishes best in a rich, sandy loam, neither too dry nor too moist. A cold, wet, clayey soil, or a dry, sandy situation, is not deemed so favorable.

The varieties of plum are inoculated on the plum stock. Those raised from the seed are preferred, and some varieties will flourish on the peach stock; but this is not deemed so suitable for a very high northern latitude.

The mode of pruning, and the distances to which the trees should be set asunder, varies but little from that of the peach. The plum from its possessing a very smooth skin, is extremely liable to the attacks of the *Curculio*; for the modes of prevention, see *Curculio*, in the former part of this work. Particular varieties of the plum tree, are also liable to be attacked by a worm, which causes large black bunches to be formed on the limbs. Some varieties, however, are exempted from this disease. The remedy is easy, and consists in separating every bunch, every badly affected branch, or even tree, and committing them to the fire. No affected tree should be suffered to exist near the orchard. In this way, and in this alone, the worm and the disease may be exterminated with certainty and but little trouble.

CHERRY. — (*Prunus Cerasus.*)

THE cherry is a tree of medium size; the branches are shining, of an ash color; the leaves are ovate, serrated; the flowers are white and produced in umbels; the fruit is a roundish drupe, of a yellow, red, or black color, and shining; of a sweet or acid flavor; it encloses a smooth stone.

The native country of the cherry has been assigned to Asia. It was brought to Rome before the Christian era, by Lucullus, from a town in Pontus, called Cerasus, hence its name.

USES.—The cherry is a highly esteemed summer dessert fruit. It is also extensively used in cookery, in pies, tarts, &c. The dried fruit forms an article of luxury and food. In the forests of the mountains of the East of France, says Bosc, where the Merisiers formerly abounded, great quantities were dried, and constituted an important article of food during the winter, of the Charbonniers, a half savage, but kind and hospitable race. Their soups were prepared by boiling the dried fruit in water, with bread, a small portion of butter being added. From the juice a fine wine is prepared. The *Kirschenvasser* or *Kirswasser* of the Germans, is identically the celebrated *Marasquin* of Venice, which was fabricated so extensively on the mountains of ancient Macedon. It is prepared by distillation from the fermented juice of the Merisiers or Mazzards, a portion of the bruised stones being added. But when other varieties are used,—the more acid varieties, five or six per cent by weight, of sugar, is added to the juice. The Mazzard cherries, the Morillos, and the fruit of the Virginia cherry, are steeped in brandy or rum, to improve its quality and flavor. The gum which exudes from the cherry tree, is stated to be in every respect equal to gum arabic, and is so extraordinary nutritive, that according to Hasselquist, more than a hundred men were kept alive during a siege of nearly two months, with no other sustenance than a little of this gum gradually dissolved in the mouth. The wood of the cherry tree is hard and tough, and is much used by the turner and cabinet maker, especially the Virginia cherry, which is capable of receiving a fine polish, and has reddish streaks resembling mahogany.

The bark of this last species, according to Dr Mease, (Dom. Ency.) is powerfully tonic and has frequently been substituted with success for the Peruvian Bark. The bark of the roots is more powerful.

VARIETIES.

The following list of cherries has been divided into two classes. The distinction thus formed will be apparent on inspection of the tree and the fruit.

CLASS. I.—This Class includes, 1. The *Bigarreaus*, which are distinguished by possessing a firm and hard flesh. 2. The Heart Cherries. 3. The *Mazzards*. This class includes the *Bigarreaux*, the *Guigniers*, and the *Merisiers* of the French. The trees of this class generally grow tall and handsome, or in a pyramidal form; the young wood is strong; the leaves large, oblong, pointed, of a bright green; the blossoms large; and the fruit sweet. The dry wood according to Bosc, weighs fiftyfive pounds to the cubic foot.

CLASS II.—To this class belong the *Dukes*, the *Morillos*, and similar kinds. The *Cerisiers* or *Griottiers* of the French. The trees of this class are generally of lower growth than those of the first class; of more compact form; the branches more slender and numerous; the leaves are of less size, of firmer consistence; of a dark green color; the flowers of less size, but more open. The fruit is round, tender, of a subacid or acid flavor. The dry wood of this class, according to Bosc, weighs 47½ pounds to the cubic foot. In addition to these, a few ornamental varieties of four distinct species will be described.

CLASS I.

BIGARREAU, HEART CHERRIES, &c.

KNIGHT'S EARLY BLACK. Hort. Trans.

Raised by Mr Knight, from the *Bigarreau* and *May Duke* combined. The blossoms of this new variety it is stated, are produced in abundance, before those of any

other sort ; and while the May Duke in the same aspect is yet a very unripe fruit, the Early Black Cherry has assumed its rich dark hue, and its flesh is then firm and juicy. It resembles in its external appearance the Waterloo, but the stalk is shorter. It is abundantly sweet, and though not very rich, of a pleasant flavor ; and remarkably early.

***AMBER CHERRY. S. H. S.**

Below medium size, perfectly round ; color of amber, but red towards the sun ; of a very delicate appearance. The flesh is melting, the taste lively and very sweet. It ripens with the May Duke.

D'AREMBERG. Thompson.

A cherry of roundish form, a dark red color ; of medium size ; tender and of excellent quality. Beginning of July.

AMBREE. For. Lindley.

CERISE AMBRE'E.

A large cherry, with a round head, flattened at the opposite end ; marbled with red and yellow in the shade, bright red next the sun ; the flesh is white, somewhat transparent, very juicy, sweet and excellent.

***AMERICAN AMBER.**

Heart shaped, large, bright amber color, of a very sweet and excellent flavor. A tree, extraordinary for its vigorous and upright growth ; it is not exceeded in this respect by the Napoleon Bigarreau and the Black Tartarean.

BIGARREAU GROS MONSTREUX. Thompson.

The fruit is large and long ; heart shaped ; of a dark red color ; flesh firm, and of excellent flavor. Beginning of July.

BIGARREAU DE ROCMONT. N. Duh. Pl. ccclxx.

BELLE DE ROCMONT, CŒUR DE PIGEON, Bon Jard.

The tree is vigorous and productive ; the fruit large, heart shaped, red, marbled and shining ; a beautiful fruit, an inch in height ; flesh white, very little breaking, juice not abundant, rather sprightly, good. Middle of June.

BLACK BIGARREAU. N. Duh.

BIGARREAU NOIR, N. Duh. Pl. cxxxviii.

A new fruit, so named by M. Chatenay, of Vitry ; it is but little extended. Fruit six lines in length, a little

heart shaped; at maturity black and shining; the flesh black violet and marbled, firm and breaking. This Bigarreau is one of the best species. Last of June and beginning of July.

LARGE BLACK BIGARREAU.

BIGARREAU GROS NOIR.

Described to me by the late André Parmentier, Esq. as one of the finest and very best of all cherries.

LARGE LATE RED BIGARREAU. Nouv. Cours

Comp. d'Agri. vol. III. p. 571.

LA BIGARREAUTIER A GROS FRUIT ROUGE. Ibid.

A large fruit, of a deep red color next the sun, a lively red in the shade; juice reddish and somewhat perfumed. An excellent variety, ripening late in July.

NAPOLEON BIGARREAU. Dr Willich.

BIGARREAU NAPOLEON, LOURMAN, Hort. Soc. Cat.

LAUERMANN, Dr Willich.

GROS BIGARREAU DE LAUERMANN.

The tree is extraordinary for the vigor and beauty of its growth; the leaves are very large, and plain or smooth on their upper surface. This is one of the three new varieties recommended to me by the late André Parmentier, Esq. as the best of cherries. I have never yet seen the fruit. It is thus described. The largest and most beautiful of the heart shaped cherries; it has an excellent taste. In shape it resembles the variegated half ounce cherry, and frequently surpasses it. The flesh is remarkably white, solid, and of a sweet, agreeable flavor. It ripens in June or July, when the skin on both sides acquires very bright red spots, that are imperceptibly lost in the whitish and yellow part of the centre and the shaded quarter.

LATE BIGARREAU OF HILDESHEIM.

BIGARREAU TARDIF D'HILDESHEIM.

BIGARREAU MARDRE' DE HILDESHEIM, Nouv. Cours Complet d'Agri., Vol. III. p. 589.

This is one of the three new kinds so highly recommended to me by the late André Parmentier, Esq. as a most superior fruit. The Napoleon Bigarreau, and the Large Black Bigarreau were the other two. The flesh is hard, the fruit spotted. Thompson does not praise it.

***GRAFFION.**

BIGARREAU, Hooker.

TURKEY BIGARREAU.

YELLOW SPANISH, as supposed, of some Amer. cols.

Very large, obtuse, heart shaped, yellowish amber color, but fine red next the sun; flesh firm, white, sweet and well flavored. A beautiful and excellent fruit, not very productive. The tree says Mr Hooker, "evidently exhibits the characteristics of age and debility," although it exceeds in growth all other cherries in Britain.

BLACK EAGLE.

A cherry of a globular form, and middle size; dark purple or nearly black; flesh very tender, rich, and of excellent flavor, and ripens early. The tree grows strong and very upright. This new variety was sent by Mr Knight, in 1823, to the Hon. John Lowell; and was raised by Miss Elizabeth Knight, of Downton Castle, in 1806, from a seed of the Bigarreau, fertilized by the May Duke.

***BLACK HEART.**

GUIGNIER A FRUIT NOIR, Duh.

Rather large, heart-shaped; dark purple, approaching to black at maturity; the flesh is dark red, tender, of excellent flavor. Ripe early in July — and is a good bearer. The true Black Heart is one of the best of cherries.

SPANISH. Dr Willich.

BLACK SPANISH.

A noble fruit for drying, preserving, &c. of a large size; dark red approaching to black; flatly compressed below; and having a small stalk. Its juice is of a deep red dye; of a mild, subacid and pleasant taste.

***BLACK TARTAREAN.**

BLACK RUSSIAN, BLACK CIRCASSIAN, SUPERB CIRCASSIAN.

FRAZER'S BLACK TARTAREAN, RONALD'S BLACK HEART, Pom. Mag.

A very large heart-shaped fruit, of most superior quality; color dark shining purple or black; the flesh firm, dark red or purple, sweet and of most excellent flavor. The tree and fruit combine an assemblage of good qualities which never meet but in a very extraordinary fruit; an elegant, very rapid growing tree, of great productiveness, very large and beautiful fruit, and of excellent quality. Supposed to have originated in Spain; thence carried to Circassia, or Russia; from Russia it was brought to Eng-

land in 1796, by Mr John Frazer.—(*Pom. Mag.*) But according to Mr Hooker it was brought from Circassia in 1794, by Mr Ronalds.

***DAVENPORT'S EARLY RED.**

A very early and excellent variety, which originated in Dorchester on the farm of Mr Davenport. The tree is of fine form; the leaves light glossy green; it bears early and abundantly; the fruit ripens from eight to twelve days earlier than the European May Duke, and in succession. It is large, bright red; the flesh firm, sprightly and of fine flavor. A popular fruit and highly valuable for the market. Middle of June.

***DOWNER.**

A new and valuable variety, reared by Samuel Downer, Esq. of Dorchester. The tree is very vigorous, and upright in its growth; a constant and great bearer. A large, light red cherry; roundish; the flesh firm, flavor good and sprightly. Very late; it ripens after most other superior varieties are gone, and is on this account the more valuable, and highly prized in the markets.

DOWNTON CHERRY. Hort. Trans. vol. v. p. 262.

A new variety, raised by Mr Knight, from the Elton or Waterloo. It is nearly round, inclining to heart-shape; of a pale yellow color, sprinkled with minute red spots and larger patches of dull red or maroon; the flesh pale amber color, tender and juicy, very sweet and high flavored.

ELKHORN.

BLACK OX HEART, LARGE BLACK BIGARREAU, Thom.

A large cherry ripening between the Black Heart and the latest varieties; the flesh remarkably hard and very peculiar; and though not high flavored, it is supposed that from its solid consistence, it may be profitably cultivated, to be transported from a distance, to market. Mr Prince has stated that he brought this fruit to New York from Maryland, and considers it on many accounts a valuable fruit.

ELTON. Mr Knight. Hooker's Pom. Lond. Pl. vii.

Raised by Mr Knight from the seed of the Bigarreau and pollen of the White Heart. The tree is very vigorous, and very productive. The fruit is pretty large, heart-shaped; pale glossy yellow in the shade, but marbled with bright red next the sun; the stalk slender, two inches long;

the flesh firm, sweet and rich. Very early. Sent in 1823, by Mr Knight to the Hon. John Lowell.

FLORENCE. Hort. Trans. vol. II. p. 229.

Large, heart-shaped, depressed; of a yellow amber color, marbled with bright red in the shade; bright red next the sun; tolerably firm, juicy, rich and sweet. A beautiful cherry introduced by Mr Houblon, from Florence.

GASCOIGN'S BLEEDING HEART. For. Lind.

Large, oblong, or heart-shaped, of a dark red color; its flesh pretty firm, of a pleasant and fine flavor. July.

***GRIDLEY.**

This very excellent cherry, which is sometimes called the *Apple Cherry* originated on the farm of Deacon Samuel Gridley, of Roxbury. The tree bears constantly and very abundantly. The fruit is of handsome size, round, black; the stalk short; the flesh very firm, like all others of the Bigarreau class; juicy, of a fine vinous flavor. A fine and popular fruit for the market. It carries well and is ripe soon after the early cherries are gone; or early in July.

HARRISON HEART. For. Lindley.

A large heart-shaped cherry, of a yellowish or amber color; but light red next the sun; the flesh is tender and high flavored. It ripens in July. Introduced into England by Gov. Harrison, from the East Indies.

HEREFORDSHIRE BLACK. R. M.

LATE BLACK HEART.

A large, black, and heart-shaped cherry; a most excellent fruit; a great bearer; and more valuable for ripening late, when most varieties are gone.

MAZZARD CHERRY.

MERISIERS.

The trees generally grow tall and handsome, and are productive — calculated for shades. The fruit varies in color from white to black; equally so in size and form; the flesh is generally soft, juicy, pleasant and often excellent.

REMINGTON WHITE HEART.

A moderate sized cherry, of moderate flavor. Chiefly valuable for its very late maturity. Said to have originated in Rhode Island.

***SPARHAWK.**

A very superior native cherry which was exhibited at the Mass. Hort. Soc. in 1833, by Edward Sparhawk, Esq. of

Brighton. The tree bears very abundantly. The fruit which is sometimes called *Honey Heart*, is large, of a red color, tender, juicy; of a sweet and excellent flavor. A fine profitable cherry from its good qualities and abundant produce to cultivate for the market. It ripens early.

WATERLOO. Hort. Trans.

A large, round, dark red fruit, inclining to black at maturity. The flesh is firm and of excellent flavor. Raised by a daughter of Mr Knight; and so named from its perfecting its first fruit soon after the battle of Waterloo. The tree is of strong but irregular growth. This fruit was sent by Mr Knight, in 1823, to the Hon. John Lowell.

WHITE OXHEART. R. M.

TRADESCANT, of COXE.

A large heart-shaped cherry, of a bright red or amber color next the sun; the flesh remarkably firm, the flavor excellent. Early in July. An indifferent bearer.

***WHITE TARTAREAN.**

TRANSPARENT, WHITE TRANSPARENT CRIMEA.

A beautiful cherry; pale yellow, approaching to an amber next the sun; a much admired fruit, of excellent flavor; a good bearer, ripening early in July. This tree grows vigorous and upright; it is thus readily distinguished from a former and abandoned variety of the same name.

CLASS II.

DUKE CHERRIES, MORELLOS, &c.

***ARCHDUKE.**

GRIOTTE DE PORTUGAL, Duh. PORTUGAL DUKE.

A large; globular formed, red cherry; like the May Duke it grows in clusters; but the tree grows more vigorous than that variety. An excellent cherry and a great bearer, ripening in July.

BELLE DE CHOISY. Pom. Mag. Bon Jard.

DOUCETTE, CERISE DE POLEMBRE.

A middle sized roundish fruit; growing in pairs on a forked stalk. Skin transparent, red, mottled with amber;

the flesh amber colored, tender and sweet; ripe rather before the May Duke; it bears well as a standard. — (*Pom. Mag.*) The Bon Jardinier describes it as *very large*; of a beautiful red color and excellent flavor; *not very productive*.

BELLE ET MAGNIFIQUE.

Specimens of this fine cherry were exhibited by Gen. Dearborn, July 24, 1830. The tree is very vigorous and productive. The fruit was judged "truly magnificent" in its appearance; color red, mottled with white spots; a valuable fruit from its late maturity.

CERISIER DU NORD. Bon Jard. p. 315.

Very late; good for ratafia and for preserves.

DEARBORN'S RED FRENCH DUKE.

The adopted name for a cherry imported from France by the Hon. H. A. S. Dearborn, name lost. A large red cherry highly spoken of by the Massachusetts Horticultural Society.

EARLY PURPLE GRIOTTE. Thompson.

A middle sized fruit, of a dark red color; heart shaped, tender and good. Beginning of June. A valuable cherry; very early.

GERMAN DUKE.

GRIOTTE D'ALEMAGNE, Nouv. Cours Complet d'Agr.

DE CHAUX, DU COMTE DE SAINT MAUR, lb.

Equally as large as the Archduke; almost as black; the flesh deep red, and very acid. It ripens the middle of July. The tree is of middle size and not very productive.

GRIOTTIER D'HOLLANDE. Nouv. Cours Complet d'Agr. vol. III. p. 575.

The largest of all the Griottiers; nearly globular, of a very beautiful red color; the flesh fine, reddish white, very agreeable. It ripens the middle of June. The flowers are large but liable to prove abortive.

LATE DUKE. R. M.

JUNE DUKE, of Cox.

A cherry of large size; the flesh very rich; it ripens the first of July and lasts long on the tree, improving in its flavor. The tree is vigorous and very productive.

*MAY DUKE.

A large globular red cherry, usually growing in clusters.

At maturity the flesh is tender, juicy, of an agreeable but acid flavor. This kind is usually gathered in June and while it is yet sour, and immature, for the markets; being one of the earliest varieties. The tree is of moderate vigor, compact in its form and productive.

MONTMORENCY.

CERISIER DE MONTMORENCY A GROS FRUIT, Bon Jard
LONG STEM MONTMORENCY.

The fruit is large, flattened at its extremities, of a lively red color; the flesh of a yellowish white, slightly acid and excellent. The tree is not very productive, it ripens in July. The Short Stem Montmorency, or Gros Gobet, is a fruit of less size, and the tree less vigorous.

MORELLO.

MILAN, Lang CERISE DU NORD, of Noisette. Lind.

Middle sized, round; nearly black at maturity; tender, juicy, of an agreeable flavor, in which much acid predominates. July. This fruit is used for preserving.

***PLUMSTONE MORELLO.**

A very large, dark, round cherry, nearly black, of a rich, acid flavor; and deemed superior to all European Morellos. The stone is very large and resembles that of a plum. A native fruit from Virginia, introduced to notice by Wm. Prince, Esq., of the Linnæan Botanic Garden, Flushing.

ORNAMENTAL VARIETIES.

LARGE DOUBLE FLOWERING CHERRY.

The tree is of vigorous and upright growth; the flowers are very large, very double, and beautiful; resembling clusters of small roses. The appearance of the tree when in full blossom is striking and highly ornamental. The tree belongs to the first class.

SMALL DOUBLE FLOWERING.

The tree is of slow dwarfish growth; the blossoms however are not less beautiful than the preceding. The tree belongs to the second class.

TOBACCO LEAF.

BIGARREAUTIER A FEUILLES DE TABAC, Bon Jard.

CERISIER DE FOUR A LA LIVRE, lb. FOUR TO THE POUND.

A small, pale red fruit, of indifferent flavor; a poor bearer. The growth of this tree is strong, but crooked; the leaves of enormous size; it is said to have received its name from the supposition that its fruit would prove proportionally large; cultivated only as a curiosity. The tree belongs to the first class.

VIRGINIA WILD CHERRY.

CERASUS VIRGINIANA.

A native; it is found growing wild in the forests and pastures, and is a distinct species from any others here described. The trees grow large, and the fruit is produced in clusters like currants; it is very small, of a pleasant sweet, slightly bitter, and very astringent taste. This variety is one of the most esteemed of all for brandy.

WEeping CHERRY.

CERISIER DE SIBERIA, N. Duh. Pl. xxxv.

This beautiful tree is of low growth, its branches slender and drooping; its leaves are very small, oblong, lanceolate; they are of a deep shining green above and of a pale shining green below. The fruit is small and numerous, of a bright red color and extremely acid. This highly ornamental tree is generally inoculated at an elevated height on the Mazzard cherry.

CULTIVATION, &c.

The stones of the cherry are sown in autumn, in a rich, well prepared soil. The second year they are transplanted to nursery rows four feet asunder, and at a foot distance from each other in the row. They are inoculated the third year. The best soil, is a rich, dry, sandy loam, or calcareous soil, and an elevated situation. A cold, clayey, moist soil, does not suit them. If the tree grows in suitable form, pruning is neither much practised or recommended.

MULBERRY. — (*Morus*.)

THE mulberry is a genus comprising many species. Its origin has been assigned to China; but several species are found growing in a wild state in America. The fruit is a berry of a roundish or oblong form; of a color varying from white to red or black; its pulp envelopes numerous small seeds.

USES. — Most of the varieties of the mulberry are esteemed dessert fruits. When perfectly mature they are grateful to the taste and very wholesome. The syrup is useful in mitigating inflammations of the throat. The juice when properly fermented, affords a pleasant vinous wine; mixed with apples they afford a delicious beverage called *mulberry cider*, of a deep red color like port wine. Lastly — the leaves of the various species of the mulberry, constitute the principal food of the silk-worm. Not every kind however is equally suitable. Those most esteemed are the *Morus alba*—*M. lucida*—*M. tartarica*—*M. Dandolo* and *M. multicaulis*.

VARIETIES.

BLACK MULBERRY.

MORUS NIGRA.

This tree is a native of Asia Minor. It rises from twentyfive to thirty feet. The leaves are large and rugged. Its fruit is large, black, aromatic, juicy, subacid and good. An agreeable wine is made from its juice. The juice is used for imparting a dark color to liquors; the bark of the root is a powerful cathartic; and from the bark of the tree, strong cordage and brown paper is made.

RED MULBERRY.

MORUS RUBRA.

A native of America. The tree rises to the height of from thirty to forty feet; the leaves are large, cordate, often palmed, and more often three lobed, dark green above, downy beneath, rugged. The fruit is of a very deep red color and excellent. This variety is esteemed superior to the Black Mulberry as a fruit, and the tree is more hardy.

JAPAN PAPER MULBERRY.*Broussonetia papyrifera.*

The tree rises to a large size, with a round head; the leaves are rough, either cordate, entire or lobed. It is a native of China and Japan, and the liber or inner bark, by being beaten to render it pliable, serves for paper and as an article of clothing in those countries. The fruit is round and curious, but not edible.

CULTIVATION, &c.

These varieties of mulberry will flourish in almost any soil, but grow most luxuriantly in a deep sandy loam; rather in a humid than dry soil. They are propagated by seeds or by layers, and sometimes by cuttings. The seeds are obtained by washing the bruised pulp of thoroughly ripe fruit; they are carefully dried, and sown early in April in a rich soil, and covered to the depth of half an inch with loam, and pressed down compactly. The second year they are transplanted to nursery rows.

MULBERRY AND SILK.**PART I. — ON THE MULBERRY.****WHITE ITALIAN MULBERRY.***Morus alba.*

A native of China. It is a tree of rapid growth, and extensively known for the uses of its leaf for the food of silk-worms. The leaves are pointed cordate, serrate, entire or lobed. The fruit is white, roundish oblong, of an insipid taste. The bark according to Rosier, may be converted into linen of the fineness of silk. For this purpose, the young wood and bark are gathered in autumn, during the ascent of the second sap, and immersed for three or four days in still water. It is then taken out at sunset, spread on grass, and returned to the water at sunrise, and this daily repeated, and finally it is prepared and spun like flax.

MORUS LUCIDA OR SHINING LEAVED.

The leaves are very large, pointed, cordate and shining. This variety is said to be highly deserving of cultivation for the nourishment of silk-worms.

MORUS TARTARICA OR TARTAREAN MULBERRY.

This mulberry is from the environs of Asoph. The leaves are large, oval, oblong, serrated, shining. The fruit resembles the *Morus nigra*. The leaves afford silk of the finest quality.

DANDOLO OR MORETTIANA MULBERRY. Dr Fontaneilles.

A new and most valuable species of mulberry for the nourishment of the silk worm. It was first discovered about 1815, by M. Moretti, Professor in the University of Pavia, and from a single young tree, he had in 1826, multiplied them to 120,000. The tree is presumed to be hardy; the fruit, which is at first violet, becomes at maturity perfectly black. The leaf is ovate, sharp pointed, entire, cordate at the base. It is thin, smooth on the under and especially on the upper surface, which is of a beautiful and rather deep shining green; it is not near so thick as that of the large white mulberry, called in France, the *Admirable*, and is thinner than those of the Spanish mulberry, (*Morus nigra*). It is neither wrinkled nor plaited. It is in general nearly eight inches wide, and ten inches long. This mulberry will be most profitably cultivated in the form of a hedge, and from the superior size of the leaf they are gathered with the greatest facility. Its superior quality has been proved by the experiments of M. Gera and Count Dandolo, who assert that they produce silk of a more beautiful gloss and of finer quality than common silk. (*See the whole article inserted by the Hon. H. A. S. Dearborn, in the New England Farmer, vol. 8, No. 29. It is from the Annales d'Horticulture, and is extracted from the Report of Dr Fontaneilles, on a letter published by M. Gera, in 1826, in the Journal of Physics and of Chemistry of Pavia.*)

CHINESE MULBERRY. (*Morus sinensis*.)

MORUS MULTICAULIS. (*Many Stalked Mulberry*.)

PERROTTET MULBERRY.

For no inconsiderable portion of the materials of the following interesting account of this new mulberry, I am indebted to the researches of the Hon. H. A. S. Dearborn. They were collected by him and inserted in the New England Farmer, at different times during 1830 and 1831, and were chiefly the translations from the "Annales d'Horticulture," and the "Annales L'Institut Royal Horticole de Fromont."

Of all the varieties of Mulberries for silk, the Chinese Mulberry or *Morus multicaulis*, appears that which is most eminently entitled to preference. It originated in the elevated regions of China, a country famous from antiquity for its silk, and renowned for its industry; a parallel to our own in its climates and divers latitudes. It is to this tree, that the disciples of Confucius, acknowledge their indebtedness for the prosperity and solidity of their empire.

The *Morus multicaulis*, or *Chinese Mulberry*, since its introduction to France, seems destined to replace, everywhere, the common white mulberry, for the nourishment of silk worms, such is its decided superiority over all others. The tree is beautiful, and of a rapid growth. The leaves in a dry and arid soil are of less size, and elliptical, their breadth being six inches and their length eight; but in a light, friable, rich, and humid soil, they are large and cordate; extraordinary specimens having sometimes measured more than a foot in breadth, and fifteen inches in length; their upper surfaces are convex or curled, and of a deep and beautiful shining green. The fruit which was unknown even in France till 1830, is long, black, and of appearance sufficiently beautiful, its flavor good, being intermediate between that of the red, and that of the black mulberry; its produce is abundant.

This mulberry differs from all others in the property which the roots possess of throwing up numerous flexible stalks; the great length which these stalks acquire in a short space of time; and the facility with which it is propagated from layers, or even from cuttings; also from the remarkable size which the thin, soft, and tender leaves,

speedily acquire, and the promptitude with which they are renewed.

The silk which the worms form, from the food afforded by this plant, is not only of superior quality, as has been abundantly proved in France, but the cocoons are of unusual size. The leaves from their extraordinary dimensions, being gathered with important economy of labor, and of time; and from their superior nutritious qualities, they are preferred by the insects to all others.

This mulberry should be cultivated in hedge rows, and never suffered to rise higher than seven or eight feet. But a few years are sufficient to raise considerable fields of them in full vigor, sufficient to support an immense number of silk worms; and regular plantations can be speedily formed, by planting the shrubs at the distance of from six to eight feet asunder; a space sufficient for the extension of the branches — sufficient also for cultivation, and for the greater convenience of gathering the leaves. So greatly is this last operation facilitated, by the flexibility of the stalks, and the very superior size of the leaf, that as we are assured by M. Perrottet, a child is sufficient for gathering the food for a large establishment of silk worms.

The introduction of this plant from Asia is due to M. Perrottet, Agricultural Botanist, and traveller of the Marine and Colonies of France. It was brought by him to France in 1821, in that vast collection, and variety of productions, which he had, during thirtyfour months, procured in the seas of Asia, or gathered on the coast, or in the lands of Guiana.

From Manilla, the capital of the Phillippine Islands, whither it had been brought by the Chinese as a tree of ornament, as well as of eminent usefulness, it was introduced by M. Perrottet into the Isle Bourbon, and from thence into Cayenne and France. At a later period it was sent from Cayenne to Martinique, and from France to Gaudaloupe; also to Senegal; the numerous plants which are already disseminated in the divers climates of Africa, of America and Europe, have all been produced by the two individual plants which were brought by M. Perrottet from Manilla. At first, its cultivation in France was confined almost exclusively to the royal gardens, that its trial and dissemination might be thus rendered the more effectual throughout every department of the country. The *Morus*

multicaulis, according to M. Perrottet, will be readily acclimated, inasmuch as it originated in a country analogous to that of France; it appeared neither to suffer from the excessive cold of the northern, or the intense heat of the intertropical regions, as the plants in the government gardens of Cayenne, had acquired during eight months a truly remarkable developement, being clothed at that time with leaves of extraordinary size; those also, which were cultivated in Senegal, although planted in an arid soil, and situated beneath a scorching sky, exhibited an appearance sufficiently satisfactory; yet in all respects, they had acquired less developement than those which were planted in the humid climate of Guiana.

M. Poiteau, in the *Annales d'Horticulture*, has stated down to 1830, "that by the information which we receive from all quarters, this mulberry is destined to replace the common white mulberry, everywhere, for nourishing silk worms." "This mulberry has not suffered in the least, from the rigors of the last severe winter."

At New York, on Long Island, this mulberry had endured unprotected the rigors of seven winters, and the very extraordinary winter of 1831-2, which destroyed so many trees hitherto deemed hardy, even to the root. Yet in our climate, there are many kinds of trees which require protection during the first winter, though they may never need it afterwards. Such are the young seedling plants of but a single summer's growth, of the *Cherry, Plum, Pear, the Quince and White Mulberry*. All which require to be taken up in autumn, and laid slanting in earth, their bodies being in part protected by soil. For all these species are liable to be killed occasionally to the root by the first winter, or to be utterly destroyed by being thrown out by frost; yet in the second winter it is far otherwise; their roots becoming strong, and firmly established, the well ripened wood of the second year, and the wood of two years' growth, becomes indestructible by any but extraordinary winters. The same precautionary measures should in northern climates, be taken with the young plants of this mulberry so valuable—the layers of but a single summer's growth, which are separated in autumn.

The vegetation of the *Morus multicaulis*, particularly in a rich and humid soil and protected situation, is extremely rapid and luxuriant, and prolonged to a late period in au-

turn, or till the tender and yet vegetating tips of the twigs are checked by frost. These extreme ends will generally be lost, as they always are of the *Common White Mulberry*, when young.

Jonathan H. Cobb, Esq. of Dedham, author of the excellent "Manual on Silk," has tried them for several years, and in a letter dated 1834, he confirms the latter remark, and adds "but that we shall be able to rear it here, is decided beyond a question." Mr Joseph Breck a distinguished botanist of Lancaster, from very critical observation of 100 trees which were set out on the place of S. V. S. Wilder, Esq. in Bolton, late in the spring of 1833, in a cold, springy soil, and northern exposition — he seems persuaded from an experience of one winter, 1833-4, and from careful observation, that they may be even harder than the *Common White Mulberry*, as they appeared to suffer less than some hundreds of the latter of 3 or 4 years' growth which stood beside them. Of any extraordinary results from a winter so unparalleled and unheard of as this last has been, throughout the country, time will soon decide; and how this mulberry and all other productions have fared from north to south. This mulberry braves the most rigorous winters of France, even to the extreme north as far as Havre. Of this important fact, we have been assured from the first rate sources; from MM. Perrottet, Bodin, Poiteau, also from M. Eyries of Havre, who has there cultivated them from their first introduction to that country.

The prediction of the late Dr Pascalis in 1830 that, "*after the discovery of this plant, a doubt no longer exists, that two crops of silk may be produced in a single season;*" this prediction has since been accomplished — its truth fulfilled by experiment. The soil and cultivation, — the habitations for the successive generations of insects being yet the same, all thus converted to *double* use, — and the production of a *double* harvest, — it will be obvious, that the actual profit thus augmented, must be manifold.

It appears from the deliberations of the French Royal Society of Horticulture, (as noted in the *Farmers' Register*) that the *Chinese Mulberry* or *Morus multicaulis* is not a distinct species, and that as a new and invaluable variety, it can only be preserved by multiplying it from grafts, layers, and cuttings; and that by these means exclusively, have the Chinese cultivators reared the tree from time im-

memorial. Seeds sown near Venice, have, it is stated, produced varieties, but none like the true *Morus multicaulis*. I have myself examined about 40 small trees, raised in 1834 from seed sent from China, but they appeared to differ from the true kind. Their leaves were indeed handsome, but I saw none with the curled or convex leaf.

SOIL, SITUATION, &c.

Although the mulberry flourishes most luxuriantly in a moist and rich soil, and protected situation, yet the leaves which are produced in such soils, are more crude, and not of a quality so nourishing. The growth of the tree, in such soils and expositions, besides being more rapid, is prolonged to a later period in autumn, or until the tender and yet vegetating tips of the twigs are suddenly arrested by the frost; the immature wood of a forced growth being more tender, is consequently more liable to be killed by early frosts and by winter. Such appears to have been the case in the winter of 1831-2, which destroyed so many full grown trees of the hardiest description, even to the root. The ravages of that destructive winter seem to have been confined to particular situations and soils; — to the productions of the forced growth of a summer not less uncommon and extraordinary.

Authors seem fully agreed that the most suitable soils for the mulberry tree, are "*dry, sandy, or stony*." And trees growing on "*dry, sandy, or stony soils*," and situated on the open plains, and on the hills the most exposed to cold winds, will be found to suffer least of all from the destructive frosts of autumn and of winter.

MULBERRY AND MULBERRY PLANTATIONS.

The nourishment which is contained in the mulberry leaf is not completely developed till the leaf is fully grown. The leaf according to Comte Dandolo, contains, 1st, the fibrous substance; 2d, the coloring matter, 3d, water; 4th

the saccharine substance ; 5th, the resinous substance. Of all these the saccharine part constitutes the chief nourishment which the leaf affords ; and the proportion of this nutriment depends on the variety of the mulberry, the age, the soil, and the moisture or dryness of the season.

The common White Mulberry or *Morus alba* may be easily raised from seeds.

In the beginning of May sow the seeds in a rich, fresh, and well prepared soil, in drills or rows, two feet asunder, and at an average distance of about an inch. Cover the seed but half an inch deep, and stamp or roll the ground immediately, that the earth may retain sufficient moisture at its surface. Carefully hoe and weed during summer, and late in autumn protect with a slight covering of straw, leaves, or evergreens, or take up all the plants and secure them in a cellar till spring.

In the second spring the trees are set in rows four feet asunder, in a rich soil, and a foot distant in the row.

GRAFTING. — *Comte Dandolo* and others have recommended to graft the wild mulberry with the large leaved and finer varieties, those which produce abundant crops of leaves ; and especially the male plants, as these producing no fruit, yield larger leaves and a greater proportion, which are not soiled and disfigured by the bruised fruit in gathering. Many of the wild varieties are bad, the trees thorny, the leaves small or few in number. They should be grafted at the surface of the earth in the third spring. The mulberry may also be raised by layers, or by cuttings.

It is highly recommended to set out trees of the mulberry for *standards* on the highways, in avenues and commons, roads, courts, &c.

DWARF MULBERRY TREE PLANTATIONS.

This is the mode of forming plantations of the mulberry which appears best adapted to our country, as the land thus planted, comes soon to a state of productiveness, yielding the greatest amount of food and of the best quality.

The plan of raising *Dwarf Mulberry Tree Plantations*, is that which I shall now recommend for general adoption : for the following reasons. — 1st. They arrive to a state of productiveness with comparatively little expense of time and tillage. 2d. Sufficient sun and air are admitted to

the tree, to render the leaves of the first quality, and to enable them to put forth early. 3d. The ground is more suddenly and completely filled and occupied than by planting standards. 4th. The tree is more easily managed and its form controlled; and the leaves are the more easily gathered. This mode, according to Dr Pascalis, is understood to be much practised in India; and was formerly in France, if not now.

The soil being prepared by deep ploughing, and rendered sufficiently rich, the young trees are set in lines or rows 10 or 12 feet asunder, and 6 feet distant in the rows. The young trees are headed to about a foot from the ground, and but two or three branches allowed to grow, these by pruning are made to diverge, continually subdividing in every direction above the horizontal, so that every part of the tree shall be duly filled with young wood and leaves. Suffer no vertical shoot to rise in the centre, and curtail all straggling shoots near the top, and all pendulous shoots below. The tree is not suffered to spread wider than about two feet, towards the wide or middle space, and the row must ever be preserved about four and a half feet in width, and about ten feet in height, and never suffered to exceed these limits. The ground in this way may be cultivated with other various productions, especially during the first years.

Hedges may also be formed, by planting the trees at distances still less than this, for more immediate use. For some other particulars relative to soil and modes of management, see *M. multicaulis*, at p. 228—231. Rocky or unproductive, light soils, may be found the most suitable. Andrew Parmentier, Esq. has recommended to set standard trees on the low grounds, twenty feet asunder; and on rising places, twelve feet asunder. A suitable proportion of the ground to be occupied with dwarf trees, and the whole to be surrounded with a mulberry hedge. I will recommend that where mulberry standards are set to remain, that the whole ground should be filled, or at least the rows with other trees, or even seedlings, sown for immediate use: their growth would be restrained by perpetually depriving them of their leaves, except only the standards. But I prefer the *Dwarf Mulberry Tree Plantations*.

GATHERING THE LEAVES FOR FOOD.

The leaves should be gathered from the ground or by step-ladders ; as climbing the trees inflicts injurious bruises, galling the limbs. The leaves are gathered in bags kept open with a hoop, and provided with a hook or strap to pass over the shoulder. Gather them while dry, after the dew has disappeared in the morning, and before sunset. Strip the leaves upwards, not downwards, as this injures the buds. When you begin a tree, strip it complete ; leave not a leaf, take all, as it injures the tree less unequally. Wet leaves are injurious, they cause disease ; therefore never gather them when wet, either with rain or dew, except in case of absolute necessity, then spread them on a floor under cover, and turn them frequently till dry. A stock should always be kept on hand sufficient to last two or three days. When gathered they should be preserved from wilting in a cool cellar, or by lying spread under cover, on a brick pavement, or clean gravelled floor, being often turned and aired and shifted alternately to new and dry parts of the floor ; they may be thus preserved, according to Messrs Cobb and D'Homergue, for four or five days.

The trees should not be stripped till after the third year. Too frequent stripping the tree injures its growth ; but where the growth is not so much an object, they may be stripped several times during a summer, and their foliage is immediately renewed. Leave a portion of the trees untouched every fourth or fifth year, to recruit ; but where they are stripped several times during the same season, they will require a rest, every second or third year.

ON THE CULTURE OF SILK — PART II.

IN SEVENTEEN SECTIONS.

SECTION 1. History of Silk—its Antiquity and Commerce. Sect. 2. History of the Silk Worm. Sect. 3. Climate, Shelter, Habitations, &c. Sect. 4. Division of Labor. Sect. 5. Space required for the Silk Worms.

Sect. 6. Amount of Food. Sect. 7. Amount of Labor. Sect. 8. Hatching of the Insects. Sect. 9. Remarks on Feeding. Sect. 10. Feeding, care and attendance. Sect. 11. Formation of the Cocoons. Sect. 12. Maladies of Silk Worms. Sect. 13. Cocoons for producing eggs. Sect. 14. Stifling the Cocoons. Sect. 15. Weight of Cocoons, produce of silk, reeling, &c. Sect. 16. Numerous successive crops of Cocoons. Sect. 17. Modern method of Comte Dandolo for rearing Silk Worms.

In the following account of silk and its culture I must particularly acknowledge my indebtedness for much that is valuable, to the excellent "Manual of the Mulberry Tree and the Culture of Silk," of Mr Cobb—also to the Treatise of the Comte de Hazzi of Bavaria, which was sent by him and transmitted by Dr Mease, to Congress; also to the valuable Treatise of Dr Pascalis on the Mulberry Tree and culture of Silk. These last named authors are the professed disciples of the Comte Dandolo and M. Bonafoux of Piedmont; also to the essays of M. D'Homergue and numerous other sources.

1.—HISTORY OF SILK. ITS ANTIQUITY AND COMMERCE.

Silk, or the splendid material produced by the silk-worm was first known in ancient *Ser*, or *Serica*, in China. It was there first discovered in its own native forests of the mulberry. Hence it was called by the Romans *Sericum*, by the Italians *Seta*, by the French *Soie*, and by the English *Silk*. Less anciently, it was also called *Bombycina*, from *Bombyx*, a caterpillar which spins a web: this being the *Bombyx Assyrian* or *Syrian*, improperly so called, since the country of the *Seres* or *Chinese*, was another country, the most remote, and bounded on other shores; many a nation and far distant country intervening.

The cultivation of silk commenced in China 700 years before Abraham, and 2700 years before Christ. The Emperor Houn-g-ti, "The Emperor of the Earth," who reigned over China more than 100 years, and whose name is rendered immortal for his noble and useful deeds—he who taught the Chinese to construct houses, ships, mills, carts, and other works of usefulness—he also, persuaded his first consort, Si-ling-chi, to bestow her attention on the silk-worms, it being his earnest desire, that his Empress

also might contribute to the welfare of the empire. Aided by the women of her household, the Empress Si-ling-chi, gathered the silk-worms from the trees, and introduced them to the imperial apartments. Thus sheltered and protected, and abundantly supplied with the leaves of the mulberry, they yielded silk superior in quality to that produced in the forests. She also taught them its manufacture and to embroider.

Silk and its manufacture and the weaving, continued to be the principal occupation of the succeeding Empresses; apartments being especially appropriated to this purpose in the Imperial Palace; and soon from the highest rank of females, it became the occupation of all ranks in China; and ere long, the Emperor, the learned class, the princes, the mandarins and courtiers, and all the rich, were attired in the splendid fabrics of silk, until finally, silk became the great and inexhaustible resource of the wealth of China.

From China it was exported to India, to Persia, to Arabia, and indeed to the whole of Asia. The caravans of Serica performed long journeys of 243 days from the far coasts of China to those of Syria. The expeditions of Alexander to Persia, and to India, first introduced the knowledge of silk to the Grecians, 350 years before Christ, and with the increase of wealth and luxury in the Grecian court, the demand for silks prodigiously augmented. Persia engrossed for a time the trade of Greece, and became rich in the commerce of silks, which they procured from China. The ancient Phœnicians also engaged in the traffic of silk, and finally carried it to the east of Europe. But for a long time after, even those who brought it to Europe knew not what it was, nor how it was produced, nor where situated was the original country of Serica from whence it came.

At Rome, and so late as A. D. 270, a silk attire of purple, was accounted by an Emperor, as a luxury too expensive even for an empress, and that empress his wife, Severa; its value being equal to that of gold, by weight. Others there were at Rome, and enough, even at that day, who were by no means thus scrupulous in regard to price. But it was not till long after the seat of the Roman Empire had been transferred to Byzantium or Constantinople, that the distinct and more perfect knowledge of the nature and origin of silk became known, and the mystery of the long sought "*golden fleece*" was revealed to Europe.

In the sixth century, two monks arrived at the court of the Emperor Justinian at Constantinople, from a missionary expedition to China. They had brought with them the seeds of the mulberry, and communicated to him the discovery of the mode of rearing the silk-worms. And although the exportation of the insects from China was forbidden, on pain of death, yet by the liberal promises and persuasions of Justinian, they undertook a new expedition, and at length, they returned through Boukharia and Persia to Constantinople, in 555, with the eggs of the precious insect concealed in the hollow of their canes or pilgrims' staves, which they had obtained in *the far and still more distant country*. Until this time, the extensive manufactures of the Phœnician cities of Tyre and Berytus had received their whole supplies of raw silk through Persia from China. A new era now commenced.

In Greece the culture and manufacture of silk soon overspread the country; the noblest ladies themselves aiding by their example. ~~On the downfall of the Roman Empire,~~ Arabia became the seat and centre of science, of arts, and of civilization. And after the conquests of Mohammed II. the Saracens or Arabians planted the mulberry and encouraged the culture of silk everywhere, throughout their dominions, both on the islands and on all the shores of the Mediterranean. Silk and the mulberry were introduced to Spain and Portugal by the Arabians or Saracens, on their conquest of those countries in 711. Spain is also indebted to their enlightened conquerors, for their political redemption from barbarism. Those wise sovereigns, the great Caliph Haroun al Raschid and his immediate successor, introduced as axioms of policy, the arts of civilization, as essential to the welfare of a nation—the practice of *agriculture, commerce and industry*, being especially inculcated by the Koran itself; thus elevated to *virtues*, they are ranked with the *good deeds of the believer*.

From Greece the cultivation of silk was introduced to Sicily and Naples in 1146. Here it long mysteriously remained, and it was not till 1540 that it had extended to Piedmont and indeed to all Italy. So extensive is its cultivation at the present day throughout Italy, that according to the Count Dandolo, two thirds of their whole exports to all countries consist of silk. Its first introduction to

France was in 1494. But its final and successful establishment in France in 1603 is due to Henry IV. whose name is held in perpetual remembrance for his noble deeds of goodness and works of usefulness. Olivier de Serres shares equally with him, the glory of the effectual work, which was at first opposed, even by Sully, from mistake and misapprehension. Colbert, in a succeeding age, continued his fostering care, until finally, silk and its manufacture has become the most productive source of the wealth of France.

Yet in France, although they raise so much silk, they still import annually, to the amount of 30,000,000 francs of raw silk, or one third of all they consume, for the supply of their manufactures.

In England, the climate from its humidity or other causes is found to be unsuited to its growth; for this reason alone the trials to raise it there have failed. Yet from 1821 to 1828, according to a late and authentic work on the silk trade, they imported of raw silk, 24,157,503 lbs., worth \$120,787,580. Of this amount \$59,881,283 came from Italy alone.

The sudden and extraordinary extension of the silk manufactures, both in France and in England, during the last fifteen years, has been mainly ascribed to the machine invented in France by M. Jacquard; and the powerful impulse thus given, has been assigned to the *Jacquard Loom*. This loom is stated to perform all those labors which had heretofore been exclusively confined to the most skilful hands, with important economy of time, and labor in the preliminary steps, and is so decidedly superior to all other looms, for all the curious varieties of figure-silk weaving, that it has superseded them all, both throughout France and England.

Yet in our own country, so highly favored in all respects by nature, the successful introduction of the silk culture, is mainly due to individual exertion. One day, the cultivation of the mulberry, and the growth and manufacture of silk, in the United States, will become a resource of wealth to the nation, and its encouragement will constitute an essential feature in "the American System." The imported silks left for annual consumption in the United States, in the year ending 30th September, 1830, amounted to \$10,000,000 with a trifling variation, mostly from Italy and France; and from the extreme beauty, added to the

great usefulness of this material, the whole quantity consumed, must very shortly be double this amount.

Those resources, the millions we now annually expend for silks, the productions of foreign industry and of foreign policy; those vast sums should be preserved to our own citizens, and a great and a general interest encouraged. An interest so adapted, as an occupation for the feeble, and a resource for the poor, and to awaken to habits of industry and of virtue the rising generation. Thus instructed and educated, they will be enabled to contribute their share to the public happiness and prosperity and to add to the resources and wealth of the country.

The enterprise, the fertile invention, the noble efforts of individual exertion, have already accomplished much; but much yet remains to be done. That industry which still slumbers, that portion which unawakened is now lost, being alone, more than sufficient to accomplish all; more than sufficient to recover again those very considerable sums, the millions so lavishly expended, with interest an hundred fold.

By those unceasing toils, and mighty efforts, and matchless labors, for which our people are so distinguished; the millions thus recovered, will not only be their just reward, but will add to the substantial wealth of the nation, and to the glory of the whole republic.

II. — HISTORY OF THE SILK WORM.

The silk worm or *Bombyx mori*, is a caterpillar, its body formed of numerous membranous muscles or rings, on the last of which is a sharp spine. The head has a horny covering; the jaws strong and sharply indented like a saw; near the jaws, two ducts convey the silken fluid; these uniting in one, form the silken thread of from 400 to 1200 feet in length; the eggs are of a dark lilac or slate color. The silk-worms are at first black and extremely small; as they advance in age and size, they cast off their outer covering or skin, usually four times at different periods. These successive changes are called *moultings*; and the times intervening, are termed *ages*. In a colder temperature, the duration of these several periods is prolonged; but in a warm climate, the period or season of the first moulting, which terminates the first age, usually occurs on the fourth or fifth

day of its existence; the second on the eighth or ninth day; the third on the thirteenth or fourteenth day; and the last on the twentysecond day. At each of these critical periods, the silk-worms remain in a torpid state, eating little or absolutely nothing for a day or more. At the end of about ten days more from the last period, or in about thirtytwo days from the beginning, the insect, now fully grown, is about three inches and one third in length, transparent, of a yellowish white or pearl color. Having now completed their fifth or last age, they eat no more, but ascend to the leaves or brushwood, which are placed for this purpose, and commence the formation of the cocoons; and in the construction of these, the insect works busily and incessantly night and day, during four days. The labor finished, the insect in the centre becomes transformed to the chrysalis state.

The cocoon is usually an inch and a third in length, of an oval form; the color yellow or straw, or pure white. The outer covering is like finest wool, and is called flos, and is easily detached; this being removed, the end of a thread is discovered, varying from four hundred to twelve hundred feet in length, of extreme fineness. After an interval of twelve days' repose, from the time its labors are finished, the insect pierces the cocoon and reappears, transformed anew to a grayish white butterfly. These butterflies never take food; they commence laying their eggs in twenty-four or thirtysix hours after leaving the cocoon. Each female usually lays four hundred eggs, which firmly adhere to the paper on which they are arranged in a handsome and circular form. In a few days after, their multifarious labors being ended, the insect dies.

III. — CLIMATE, SHELTER, HABITATIONS, ETC.

Wherever the mulberry finds a congenial climate and soil, there also, the silk-worm will flourish. Such a climate and soil, and such a country is ours, throughout its whole extent, from its Eastern to its Western shores. The silk-worm requires a pure atmosphere for the preservation of its health. It has been proved in Toulouse in France, that the silk-worms raised in the huts of the poor peasants, and enjoying the pure air through cracks and broken windows, were from this cause alone, more productive than those which were reared in the houses of the rich in the city.

" Mr Cobb saw the insects raised by Mr D'Homergue in a yard of mulberry trees in the city of Philadelphia, which endured cold windy days, and storms of rain and thunder ; a few of which notwithstanding spun in thirty days and produced excellent cocoons. It is however considered necessary to give to the silk-worms a shelter or habitation, tight and comfortable, as those which are required for the protection of our cattle ; to defend them from storms and cold winds, and humid currents of air, as well as from those natural enemies of the silk-worms, the cats, mice, rats and poultry and birds of all other kinds ; also, the ants, these last are excluded by surrounding the posts of the staging with quick lime or a glutinous substance.

The houses for the silk-worms should be in airy situations, they may be constructed of rough boards, matched or tongued. They should be provided with numerous opening or doors in the sides and roof, of suitable dimensions for the admission of fresh air, which is essential to the health of the insects ; also, with a few windows for admitting light at all times.

The silk-worms are fed on stagings which may be three feet in width, running lengthwise of the apartment. These are arranged one above another, the uppermost being two inches narrower than the next below, that if any should pass their bounds, they may be caught in the fall. Those stagings for the last age, may be placed two and a half feet asunder ; for the first ages a foot and a half will do. Thin boards would answer, with strips of inch board nailed on the upper edge, to retain the insects within bounds. These ranges may be double, with aisles or walks between of four feet in width ; but the stagings must not connect with the sides. More properly, they should be formed of canes or rattans, or light split basket stuff, as these are light, and easily cleaned and dried, and admit the air to circulate through. These rest on slender supports. They are more easily cleaned, if provided with a movable edge. Netting of twine attached to the bottom of a square frame of inch square boards, may be used, as it saves much labor ; on raising this from the hurdle, the silk-worms are separated from the litter, which falls through. Mr Whitmarsh, of Northampton, has, during this winter, constructed a building and prepared for 1,000,000 of silk worms, 4000 frames of netting formed of cotton cord, in a manner quite

new in many respects, and originated by himself, which, it is supposed, may save half the labor formerly required in feeding and removing the rubbish. This netting is of different degrees of fineness, according to the age of the insect, and is placed on slender supports. Underneath are slides of paper for removing the litter, which all passes through. These slides are placed so near, that if by accident the silk-worm gets through, he may, by reaching upwards, recover his former station on the netting. Thus the insects are preserved from the annoyance of their litter, and a free current of air is admitted.

IV. — DIVISION OF LABOR.

The cultivation of the mulberry and the raising of silk, may each with advantage be conducted as separate branches of the same department. The avenues of the mulberry tree on the plains of Reggio, with the habitations for the insects which are on either side, are the property of wealthy citizens who reside in Reggio; these furnish to another class the leaves, and every necessary requisite, receiving in return, two thirds the product. Other places receive less. Thus, too, in France, the plantations of the mulberry constitute, in many places, a part of the real estate of the landed proprietors, the leaves being annually sold on the trees. And a gentleman who has resided many years in France, informs us of one plantation of 5000 young trees, which, when well grown, it was computed, would bring annually one dollar each for a single crop of leaves. In that country, whole families, at the suitable season, find employ in gathering the leaves, as an exclusive occupation. The reeling may also form a distinct branch, although it is intimately and generally connected with the culture.

V. — SPACE REQUIRED FOR SILK-WORMS.

Five ounces of the eggs of the silk-worm it is computed will produce 200,000 silk-worms. This appears to be the calculation both of Dr Pascalis and the Comte de Hazzi. Both of them professedly follow those eminent and distinguished guides, the Comte Dandolo and his disciple M. Bonafoux. The space which 200,000 silk-worms will require on the hurdles, according to different authorities, I

have designated as follows in square feet, according to their different ages :

<i>Authorities.</i>	<i>1st Age.</i>	<i>2d Age.</i>	<i>3d Age.</i>	<i>4th Age.</i>	<i>5th Age.</i>
M. Bonafoux.	47½	95	230	545	1195
Comte de Hazzi.	50	100	230	550	1200

The space allowed by Mr Cobb appears to be about one fourth less than the above. For an ounce of eggs, which he calculates will produce 35 to 40,000, he allows but the following space, in square feet and inches : 1st age, 7 ft. 4 in. ; 2d age, 14 ft. 8 in. ; 3d age, 34 ft. 10 in. ; 4th age, 82 ft. 6 in. ; 5th age, 183 ft. 4 in.

Other calculations, however, are based on allowing greater space. Yet the house described from M. Bonafoux for 160,000 silk-worms, contained but forty hurdles, each fifteen feet long and three feet wide. I shall speak of this house again.

The most disastrous results are to be apprehended from crowding the silk-worms too close, and an inattention to cleanliness. An error in these points is often fatal, and may cause a total destruction by inducing malignant diseases. The above is the calculation for 200,000, hatched all at once, in the usual way. But when, as has been proposed, but 100,000 are hatched at a time, and at intervals of about eight days, it has been asserted that the same space will accommodate 500,000 at the same time, of the different ages.

From the combined accounts of Comte Dandolo and M. Bonafoux it would appear that 1,000,000 silkworms on hurdles, require 12,937 feet. Yet the house as a specimen of M. Bonafoux, calculated for 160,000 silkworms, on forty hurdles, in stages or stories ten deep, and actually containing 80,000, was but twenty feet square, twenty feet in height. But then this house, so small, stood *alone*, by the side of a brook, with five windows and twenty ventilators opening through the four walls on every side, and in the roof ; with a chimney and broad hearth, for blazing and sudden flame fires. But Comte Dandolo allows more space. These openings in the roof are very important, as well as the space above, as in spacious barns.

A gentleman who has devoted much attention to this subject has stated that the requisite space for 1,000,000, is equal to a room forty feet by eighty. I should rather pro-

pose two buildings, each twentyfive feet by sixtyfour, and connected at a corner; these would cover precisely the same space, and enjoy a more open and purer air.

VI. — AMOUNT OF FOOD.

According to the Count Dandolo, five ounces of eggs will furnish 200,000 silk-worms, which will consume 7000 lbs. of leaves; and one hundred trees, great and small, will furnish the food for all, and 21 lbs. of leaves will furnish the food for 1 lb. of cocoons.

Count de Hazzi, from the sources above named, calculates that 200,000 silk-worms require 10,000 lbs. of leaves in the different stages of their existence, in the following proportions: In the first age, 50 lbs.; 2d age, 150 lbs.; 3d age, 460 lbs.; 4th age, 1390 lbs.; 5th age, 7950 lbs.

According to the Diary of M. Bonafoux, 200,000 silk-worms were sustained on 7217 lbs. of leaves. But it is admitted that a certain quantity of leaves were given in the intermediate meals, which were not reckoned in the account; also, that in the first stages the leaves were chopped, which enables the silk-worms to consume them without waste.

VII. — LABOR OF ATTENDANCE.

According to Mr D'Homergue, where the mulberry trees are convenient, as they always should be, two women are sufficient to gather the leaves and attend to four ounces of eggs, making, at 35,000 to the ounce, 140,000, until the fourth moulting, when more will be necessary, especially in the last ten days. Mr Du Ponceau, says Mr Cobb, raised in the city of Philadelphia, seven ounces of eggs with the labor of two persons, and those not fully employed except the last ten days; and some occasional help, who were employed to bring the leaves from the country two miles distant. A gentleman who has paid much attention to the subject, and one on whom we may rely, has assured us that the labor required to attend 1,000,000 silk-worms would be, in the first week, two persons; for the second, four; for the third, eight; for the remaining two, fifteen to twenty. — *New York Farmer*, Vol. vi. p. 243. Most of these, it is added, may be boys, girls, or aged women.

VIII.—HATCHING THE INSECTS.

The eggs of the silk-worm are of a pale slate, or dark lilac color, and of the size of a pin's head; those of a yellow color are imperfect. When the mulberry begins to unfold its leaf, which in our climate, Lat. $42^{\circ} 23'$ is towards the last of May, and in settled fair weather, let the papers which contain the eggs be placed on tables in a comfortable room, with windows facing the south, but not exposed to the sun. In such a situation, the usual warmth of the atmosphere produced by the sun, is sufficient to hatch the eggs. When the eggs assume a whitish color, or in about ten days, lay over them sheets of white paper, pierced full of holes of the size of a large knitting needle, turned up at the edges to prevent the escape of the silk-worm. Lay over the paper, twigs containing young leaves of the mulberry, and the insects, attracted by the smell of the leaves, crawl through the holes, and fall to feeding. Every night these leaves are to be carried to the shelves allotted to those of the first age, and allowed suitable space. Being careful to preserve each day's hatching by itself, marking the date on the hurdle.

IX.—REMARKS ON FEEDING.

The quantity of silk which the insects afford, is in proportion to the amount of food consumed. The duration of the silk-worm is prolonged by a cool season; and by scanty or irregular supplies of food, but the amount of silk, is in this case, greatly diminished. When a crop of silk-worms thus linger, either through cold or famine, for thirty or forty days, the amount of silk which they afford is but inconsiderable; while the bounteous harvest afforded by a crop of silk-worms, fully fed and well attended, which, in a warm temperature, finish their labors in twentyfour days, will produce more than a double amount of silk. The silk-worm feeds night and day, and the more it is fed the faster it grows, and the sooner it will come to maturity, and the greater will be their size; and in proportion to the dimensions of the insect, will be the size of the cocoon, and the amount of silk produced. In China, it is stated that the silk-worms are fed every hour, night and day; the *phalena* being a night insect.

X. — FEEDING, CARE AND ATTENTION.

1st Age. The eggs of the silk-worm being hatched by the natural warmth of the atmosphere, are removed to papers placed on the hurdles. They are of a black color, one twelfth of an inch in length ; those of a red color may be thrown away. Feed with but a small quantity of the young leaves at a time, four times during the twentyfour hours. They eat well during about three days, when they grow torpid and must not be disturbed till they awake. Remove the litter twice during this stage ; and during this and the two following stages, remove the litter to a table in an apartment separate, and strew over a few leaves and you will recover any lost worms.

2d Age. The silk-worm awakes hungry ; feed them about two days with young leaves or older leaves chopped fine, when they will grow torpid and are not to be disturbed. The litter during this stage is to be often removed. You may bait the silk-worms to any corner of the hurdle by a few leaves when you choose, for the purpose of sweeping the litter.

3d Age. Continue feeding the silk-worms with full-grown leaves. Clear the litter often — once a day at least.

4th Age. In this age the silk-worms are of a whitish flesh color, except the spotted species called tiges. Their appetite becomes voracious. The coarsest leaves are now greedily devoured.

5th Age, and last. Bags of leaves are now introduced and distributed : They now devour incredible quantities of full grown leaves ; even the coarsest leaves are equally valuable, and night and day they must be fed to the full. Their time now being short, must be improved continually and to the utmost, for the more they eat, for they hunger incessantly, and the faster they feed, the more abundant will be the produce of silk. During this and the former age, abundance of litter will collect from prunings of straggling branches and the stalks of the leaves — all must be removed at frequent intervals, and when the warmth of the atmosphere will admit, as in the former ages, the numerous windows in the roof and sides must be opened to preserve a pure atmosphere. When the atmosphere is damp, it must be excluded ; and the litter removed the oftener, lest

pestilence should ensue. They delight in all the latter stages in a cool, fresh and pure atmosphere. When the weather is parching hot and dry, sprinkle the floor with water occasionally, and keep vessels filled with water to rectify the air.

XI. — FORMATION OF THE COCOONS.

When the silk-worms become transparent, and of a clear pearly color; when they cease eating and run to and fro, looking upwards or trying to ascend; when the green circles round the body become of a bright gold color, these are sure indications that they are prepared for their last work of forming the cocoons. Then and not before, brush or twigs of oak with the leaves on are good, and are provided. The leaf of the oak is strong and the cocoon is separated from it without injury by crumbling the leaf. These should be cut and dried three weeks previous, and preserved in readiness till required. They are placed around the edges of the frame upright with the top spread. Mr Gideon Smith, of Baltimore, prefers broom corn, which is placed pressing against the shelf above and in a spreading position. The oak leaves are used by Mr Cobb. Dr Pascalis, has found that two hurdles secured together by hooks and staples at top and bottom and placed vertically, a little inclining, and an inch and a half asunder, answer admirably, the front one should be elevated an inch, that the insects may find a passage upwards from beneath. Three hurdles placed together in this mode will form two spaces, which the silkworms soon find and fill. At Northampton, netting hurdles have been tried, and much approved. — These may be placed vertically or inclining in the same mode as directed above, or an inch and a half distant from the wainscot, or other fixed body.

XII. — DISEASES OF SILK-WORMS.

Diseases of silk-worms, like epidemics in crowded cities, when they do occur, are generally caused from want of air and space, or from being fed with wet leaves, or from an inattention to strict cleanliness, and want of a frequent change, or of wholesome air. Whenever any of them appear sickly, they are to be removed to a separate corner or apartment, and placed by themselves, on a separate hurdle

called the *hospital*, that they may not infect the atmosphere, and spread contagion. A very damp state of the air of long continuance being unwholesome, is to be corrected by flame fires.

XIII. — COCOONS FOR PRODUCING EGGS.

Select for seed, the best cocoons; those which are of largest size, and feel firm, and are of a bright color; an equal number of males and females. The male cocoons are slender, depressed in the middle, and pointed at both ends. The female cocoons are of larger size, of a rounder form, and resemble in shape a hen's egg. Having stripped the *floss*, they may be strung together by threads, being careful not to pierce the cocoon; or they may be placed in a single layer, in open paper boxes, on shelves or tables, in a darkened, retired, and warm airy room or chamber. In about ten or fifteen days from the time they complete spinning, according to the warmth of the season, the moth emerges from the cocoon, a butterfly of a grayish white color. The male usually appears first, and is known by his smaller size and a continual flutter of its wings. The female is of larger size, of a whiter color, and seldom moves. These are to be paired, and removed by their wings to sheets of paper spread on tables or boards; where they are to be left shut up in darkness. The female usually commences laying in about from twentyfour to thirtysix hours after leaving the cocoon, and lays from three hundred to four hundred eggs, disposed in a circular space on the paper, to which they adhere. One hundred pairs of cocoons which weigh a pound, will produce an ounce of eggs. And an ounce of eggs is computed to produce forty thousand silk-worms. These papers are to be carefully rolled up and placed in boxes lined with paper, and preserved in a cool room or dry cellar, where they will not freeze.

XIV. — STIFLING THE COCOON.

Were it convenient to reel the silk from the cocoon immediately after it is spun it would be the best mode; but where it is not convenient, the insect contained in the cocoon must be stifled within about ten days after the cocoon is completed, otherwise it will perforate the cocoon, which would thus be rendered of little value.

The cocoons are stifled or killed in various ways. In Italy, and sometimes in this country by exposing them to the ardent rays of the sun for three days when the thermometer exposed to its rays is at 88° — they are exposed each day from 10 o'clock, A. M. till 4 o'clock, P. M. There is no better way than this, as the cocoons are left very bright. In France they are placed in bags or baskets in ovens for half an hour shut up with the heat about 88° , or after the bread is drawn. This is a good way. Another way is, to place them in sieves or boxes with perforations at the bottom, and covered with a woollen cloth very close. They are then exposed to the scalding steam for about ten minutes by being placed over a kettle of boiling water; and afterwards rolled up for an hour in a woollen cloth. In the New York Farmer, Mr Brewer has informed us, that the cocoon may be stifled effectually by sprinkling with spirits of wine and tightly enclosing in a tin box which is to be exposed to the sun a few hours. The vapors of the spirits of wine not only destroying the cocoon but effectually dissolving the gum and releasing the fibres so completely that they may be reeled without the aid of hot water. Another and more effectual mode is to enclose the cocoons in a steam box, into which the steam of boiling whiskey or New England rum is admitted at the bottom, the lid being perforated with gimlet holes. See N. Y. Farmer, Vol. 6, for 1833, p. 227. This is the mode mentioned by Dr Lardner.

After destroying the insect, the cocoons are laid in thin layers, on floors or stagings, or exposed to the sun till the insect is dried up.

XV.—WEIGHT OF COCOONS, PRODUCE OF SILK, REELING, ETC.

1. In Georgia, cocoons were produced in the early settlements, which were so heavy, that two hundred weighed a pound. Those raised by Mrs Davenport, under the direction of Mr Cobb, are stated to have required two hundred and six only to weigh a pound. Those raised by M. Bonafoux averaged two hundred and fiftysix to a pound; and those raised by Mr Busti of Pennsylvania, required three hundred and six to the pound. Two specimens produced by Mr D'Homergue, one raised from eggs from Carolina, required three hundred and thirtysix to a pound. The other from eggs received from France, required three hundred and

eightyseven to the pound. These last are called small. In all these cases the cocoon was not stifled.

2. Count Hazzi states that seven to ten pounds of cocoons will make a pound of raw silk. In France, sometimes even twelve have been required; while in America, eight pounds will frequently produce a pound; and Mr Cobb has stated that eight pounds avoirdupois yielded from sixteen to eighteen ounces of silk, six to nine cocoons to the thread.

3. According to Mr D'Homergue, 2400 cocoons of 350 to the pound, will produce a pound of spun silk; or at the rate of 416 lbs. of silk for 1,000,000 cocoons. Mr Cobb has informed us, that this calculation cannot be far from truth, and yet even a less number will, he states, produce a pound, if well taken care of. Mr C. found that 8000 cocoons produced three pounds, including floss. If we take this for our basis, 1,000,000 cocoons would yield 375 lbs. Yet, in the case of the very large cocoons produced by Mrs Davenport, of 206 to the pound, 1,000,000 cocoons at eight pounds for one would produce 606 lbs. Four hundred pounds of silk for 1,000,000 cocoons, must, I think, be deemed a large crop, and all this might be easily produced, provided the silk-worms were properly attended, and the silk skilfully reeled.

4. REELING.—An establishment for reeling silk, is called a *filature*; and Mr D'Homergue, and others too, assert, that *everything depends on the reeling*. So important, indeed, is this branch considered, that an essential portion of the profit depends on its being properly performed. Until very lately, most of the silk which was made in Connecticut was converted into sewing silk: and in 1831, according to a statement I have seen, \$81,000 worth of sewing silk was made in Mansfield alone. "The Connecticut sewing silk," says Mr Cobb, "at present does not bring a higher price than the reeled silk as it comes from my reels. As it is said that there is a loss of one half of the weight in the preparation of sewing silk, it is evident that to reel it properly and sell it for raw silk, would bring a hundred per cent extra profit."

5. For the want of those suitably skilled in reeling, the cocoons are stated to bring from twentyfive cents a pound to fifty cents, while eight pounds only of good cocoons are required for a pound of silk. And as to the time required for reeling, and the price of the silk when properly reeled,

Mr Nouaille, according to Mr Cobb, has stated, "that at Novi (Italy) a woman experienced in the business, with the assistance of a girl to turn the wheel and attend the fires under the cauldron, can with ease reel off one pound of silk, consisting of four or five cocoons, of the most perfect quality, in a day. I am credibly informed that the price of silk reeled according to the above directions, in Europe, is from four to seven dollars, according to its fineness. Mr D'Homergue says a woman may now reel three pounds a day." In another place Mr Cobb states that silk perfectly well reeled and suited to the European market is worth six dollars per pound.

The acknowledged superiority of the Italian silk is ascribed to the perfection of the process of reeling; this is effected by the Piedmontese reel. Were the threads of silk laid on the reel parallel, as in the case of cotton, the silk, from its gummy nature, would stick and become useless. To prevent this, the fibres pass through guides which have a lateral motion backwards and forwards, by which the thread winds spirally over the reel and returns spirally back; the motion of the reel and the air dries it effectually before the crossing of the threads takes place. Mr Gideon Smith of Baltimore, has constructed an improved reel, on the principle of the Piedmontese reel. The drum wheel and the pulley wheel are so proportioned, that the traversing bar moves back and forth five times to nine revolutions of the reel. Mr Cobb has also constructed an improved reel, on the principle of the celebrated Piedmontese reel. Mr Cobb's reel is sold for twentyfive dollars. Reels are to be procured in the principal cities, at the Agricultural Warehouses. These reels are double and form two separate threads each.

The use of the reel requires dexterity and practice. The cocoons being cleared of floss, are thrown by handfuls into basins of pure soft water, placed over small furnaces of charcoal fires. When the water is almost at boiling point, sink the cocoons with a whisk of broom corn, under water for two or three minutes, to soften the gum and loosen the fibre. Then moving the whisk lightly, the filaments will adhere to it, and may be drawn up till the flossy silk is unwound, and laid aside, and the fine silk comes off. A sufficient number being collected the reeling begins. If the pods leap upwards, slacken the reel; if it

comes off in burs, turn faster; if the water is too hot, they furse in unwinding, and cold water must be added. It requires long practice dexterously to attend the splicing on the fibres, to keep up an even thread, as the silk grows continually finer to the last of the cocoon.

Mr A. Brooks of Scituate, has invented a machine which reels, doubles, and twists the silken threads, and at once converts them to sewing silk. Very lately we are informed of another machine, at Northampton, which operates on many spindles, reeling and twisting at once, and is thought to be a valuable improvement. All these machines are highly spoken of as important improvements. To these, it has been proposed to connect horse or water power, as it has been to the loom lately constructed by Messrs Gay & Bottum, at Olneyville, Rhode Island. As to sewing silk, it is formed of two kinds, and four qualities; that only being formed of the best silk which is designed for sewing silk stuffs. The other, or second quality, is for sewing woollens and for cordonett or twist. Silk of the first quality is for *singles*. Of the second quality, or *organzine*, for the warp. Of the third quality, or *tram* silk, for the woof. The bad cocoons and dupions or double cocoons, form the cordonnet or twist of the first and second quality.

As to the quantity of silk to be procured on an acre, writers vary. Mr D'Homergue, in his letters to the Hon. Andrew Stephenson, Speaker of Congress, supposes 3000 trees set on one acre, will produce in seven years a single crop of 90,000 lbs. of leaves, sufficient for 7500 lbs. of cocoons. And the Massachusetts Journal of 1828, Vol. x. page 137, says, "a single acre planted with mulberry trees will produce from five to six hundred pounds of raw silk." I will presume that both these calculations are overrated, very much so, and are not to be taken as guides. Still, farmers in Connecticut find the culture very profitable. Two acres of mulberries yield as much profit as a good farm. One gentleman in that state set out, two or three years since, over one hundred acres with mulberry trees, as the public journals inform us. Mr Whitmarsh of Northampton, proposes commencing with 1,000,000 silkworms this season, on a new and improved plan, and has made his preparations accordingly.

XVI. — NUMEROUS SUCCESSIVE CROPS OF COCOONS.

From the present encouraging appearances, we are induced to believe, that instead of one single and solitary crop of silk in a year, we may yet be enabled, in our climate, and with our prolonged summers, to raise not merely two crops of silk a year, with a void interval of time between them, but numerous crops of different ages at the same time and in rapid succession for a season. With the complete establishment of such a system, a new era with us will commence. There are mulberries which will renew their foliage suddenly, and for numerous successive times in a season. Where a regular succession of crops can thus be obtained, with a diminished proportion of labor, of land, of cultivation, of habitations and of furniture, for the successive generations of insects, how greatly augmented must be the profit.

Some, I am aware, might object, on the supposition that the plan has been before tried an hundred times in Italy, in France, and other countries. Not a doubt exists but it has been tried. But we have no evidence whatever that in a suitable climate, it has ever been tried fairly and aright, and failed. It seems important, that in this case, only the eggs of the former year should be used, as these by age, are found to hatch more promptly and simultaneously, and all these may be saved from the cocoons of the first crop produced, which would prevent the possibility of a degeneracy. These are to be preserved dry at a suitable temperature, and to be transferred to an ice house if necessary, till the season they are wanted. Dr Millington, however, is persuaded that it might be advantageous to have different races of different ages.

In Tuscany, so fine is their climate, that two crops of silk are annually produced. The same has been effected by Mrs Parmentier at Brooklyn, on Long Island. The first crop being fed from the leaves of the *Morus multicaulis*, *Morus alba*, and other mulberries promiscuously, were of different colors, some white, and some of an orange color. But a second crop of worms from the same cocoons, being fed exclusively on the leaves of the *Morus multicaulis*, finished their labors in the short space of twentysix days from the commencement, which was about the 30th of July.

This last circumstance might be, in part, owing to the warmth of the season. The cocoons thus produced were not only of larger size than those of the first crop, but what is still more important, they were beautiful and shining, and of the *whiteness of snow*.

At the Fair of the American Institute of New York in 1833, cocoons were produced of two successive crops of silk. The first crop were hatched 11th of May. The second crop the 8th of July, and a third crop might have been produced. All being fed on the *Morus muticaulis*, they were of a snowy whiteness. In the same year Mr E. Stanley of Ogden, N. Y., produced two successive crops, the second were hatched by accident, and the cocoons were fine. In Brattleboro', Vt, in the same year two successive crops were produced from the common white mulberry. And in 1834, as Dr Holmes has recorded, *two crops* of cocoons, both of them large and perfect, were produced in Winthrop, Maine. See his account in the *Maine Farmer*, vol. iii. Feb. 20, 1835, published at Winthrop.

In all these cases, the second crop of silkworms was produced from the eggs from the cocoons of the first crop.

Dr Millington however, states that this practice is wrong. In his valuable communication in the *American Farmer* for January, 1829, he has stated that the eggs of the same year hatch but partially, or do not hatch so regular as those of the former year. He notes the date and the day the eggs are produced, on the papers on which they are deposited; and those eggs of a similar age are brought forward to hatch at the same time, and then they usually are all ready to spin together. These are carefully rolled up and preserved in dry boxes, and kept in a dry cool cellar, and in June or July of the following year and when the heat of the climate or season requires it, they are transferred to a dry ice house.

Among the great advantages of having silk-worms of different ages in the same apartment, Dr Millington states, "that the same room and shelves will hold abundantly more worms at the same time, without being crowded; and a room and shelves which will but barely accommodate 100,000 full grown worms, will better accommodate 250,000 consisting of four or five different ages, provided each age or parcel are about equal in number, and are

hatched at about seven or eight days apart. Another advantage is, the same number of hands, with the same quantity of labor, will make more silk and do it with less trouble and perplexity, than when the whole crop of worms are of the same age and all spin at the same time. When milk-worms are young, they are extremely small, and require but little room, little food, and little attention. All the food they consume, up to the time they are sixteen days old, would not make more than one meal for them when full grown; consequently when the whole crop of worms are of the same age, there is at first but little to do; but for a few of the last days they will eat voraciously, and must all be removed and cleaned frequently, and all set to spinning at the same time. So much to do at the same time creates a hurry and perplexity which must eventuate in a loss for want of time to do all that is required. * * *

When the worms are of different ages, the labor required is more equalized. A part of them will constantly be of the age to require considerable attention. But this parcel will be so small, that the hands will have spare time to attend to the younger parcels. I have certain shelves allotted to each parcel during a certain age; and *other shelves exclusively for them to spin on*. I begin with the fresh hatched worms, placed on the shelves allotted to worms of that age. After their first moulting I pass them to the shelf allotted to the next age, and again supply the first shelf with fresh hatched worms. In this manner I continue, through the whole season, to bring young worms on the first shelves, and pass them on until they reach the spinning shelves, from which the cocoons are removed, to make room for the next succeeding parcel."

"Last year I had silk-worms constantly in feeding from the 20th of April until after the 20th of October."

We are assured on first rate authority, on that of Gideon B. Smith, Esq. of Baltimore, that Dr Millington is an eminently practical, scientific agriculturist, and has made silk one of the principal objects of his attention during several years. Mr Smith from his own experience, "bears testimony to all Dr Millington's remarks. And considers his as the very best article which had yet appeared." This was in January, 1829. Dr Millington resides at St Charles, in Missouri, about latitude 38°.

I am perfectly aware, that the excellent Dr Pascalis, at

the time he published his work on silk at New York in 1829, endeavored to explode the idea of attempting to raise numerous crops, or even two successive crops of silk in a season. He states some plausible reasons for his objections, particularly the record of the failure of an attempt near Lyons about 1820—and also the failure of the attempts at the Isle of Bourbon, situated beneath a fiery sun, and within the burning zone. In the next year and in No. 2 of his valuable work, "The Silk Culturist" for January, 1830, Dr Pascalis has recorded the successful introduction of the silk culture to the *north of France*, a thing which had been deemed at least, equally as problematical thirty years before. Also that Dr Deslongchamps had even succeeded in raising a second crop of cocoons from the eggs of the first. Dr Deslongchamps was one of a society of *savans* at Paris who had performed many experiments to prove that this branch of industry can be successfully carried on through all the northern departments of France. He also had ascertained by experiments at Paris, that the cocoons which were produced by silk-worms fed exclusively on the *Morus multicaulis*, were even rather heavier than other cocoons. The more complete and effectual conversion of Dr Pascalis to the system, does not appear so fully until afterwards, when speaking of the *M. multicaulis* which he had received from France, he says, "after the discovery of this plant, a doubt no longer exists, that two crops of silk may be produced in a single season."

XVII. — MODERN METHODS OF COMTE DANDOLO FOR REARING SILK-WORMS.

[Extract from Dr Pascalis' "Practical Instructions," &c.]

Specimen house of Mons. Matthiew Bonafoux of Piedmont, the disciple of Comte Dandolo. I omit the diary. The house, though calculated for 160,000, yet in this instance it contained but 80,000. The house is isolated and exposed on all sides. It is by the side of a brook. It is twenty feet square in the clear, of course the same in height. Around the four walls, at ten feet from the floor, there runs a frame gallery, which facilitates the attendance of the nursery in all its parts. There are five windows and thirteen ventilators through the walls, so disposed as to admit fresh air on all sides. These last are a foot square more

or less, and furnished with slides ; and seven ventilators in the roof to open with cords. There are two stoves in opposite angles, each with an air chamber for heated air ; also, a fire place in the side with a broad hearth, for fires of light blaze or flame fires. There are forty hurdles, each fifteen feet long and three feet wide, sufficient for four ounces. Opposite the principal door is a small house in two apartments, one of which is for the attendants, and the other for preserving the implements and also used as a hot house for hatching the eggs.

There are various implements and furniture which I shall not describe. A *Hygrometer* for ascertaining the moisture ; but a saucer with some half pounded salt will shew the amount of moisture. Excess of moisture is rectified by the stoves or by flame fires. The *Thermometer* regulates the heat within, which in the beginning is 75° , but is lowered gradually to 63° in the last days, though the weather is constantly growing warmer. Also a *Fumitory* or large bottle containing seven ounces of sea salt, three ounces pulverized manganese, and two ounces of water ; a large spoonful of oil of vitriol being added, causes an effervescence, which neutralizes the bad smell or miasma.

The silk-worm according to the diary, passed through the five different ages in forty days. The 80,000 silkworms consuming 2887 pounds 6 ounces of leaves, besides a certain quantity of foliage, given in intermediate meals, not herein included. In the last stages the leaves were given whole. The space occupied in the last stage is stated in the diary at six hundred and seven square feet ; but in the recapitulation, it is put down at three by three hundred and fortyfive feet, which would be something more, or equal to the space in the clear of twentythree hurdles. Total weight of cocoons three hundred and four pounds eight ounces, or sixteen to the ounce ; all firm, well nourished, sizeable, of a fine straw color. One pound of cocoons has required nine pounds of chopped mulberry leaves.

Let it be remarked, that this house stands alone, exposed, on its four sides to the four winds. And with the ample space above, it might well contain double the number usually allotted in the same area, in buildings covering a wide space, or in secluded situations.

Excess of moisture being rectified by flame fires, which

are sometimes kindled four times a day. Dr Pascalis, an eminently scientific gentleman, has by electricity inspired the silk-worms to hasten their labors. By insulating the hurdles, and by the aid of the electric machine and jar, he has succeeding in bringing their labors to a close in twenty-seven days. He states that he is willing, though it divides the honor of discovery, to appeal to the celebrated Abbe Boissier de Sauvages, who wrote 70 years ago. Sauvages had expressed his belief that the finely pointed appendage or process, proceeding from the last ring of the silk-worm was a mysterious organ, the use of which could not be defined, unless it was an *electrical point or tractor*. He proposes to correct the unwholesome condition of a damp atmosphere by fires, which will diffuse a *dry heat*: adding, "That temperature is at all times best for nurseries, in which the air is the most *electrified*, and electrical experiments are the most *successful*." * * * Comte Dandolo rectifies the dampness of the air "by burning in one or two chimneys, shavings or straw, or any small dry brush-wood, because the external air thereby attracted, will comfort and restore the languishing worms; and this renewed air by no means can increase the necessary or internal temperature. Another reason why blazing fires are to be preferred, is the quantity of *light disengaged* from dry combustibles; it is surprising how useful this reviving light proves to the insects, and how much it contributes to their health and growth."

VINE. — (*Vitis vinifera*.)

THE grape vine is a deciduous tree, with an irregular contorted stem, and long flexible branches. They trail on the earth, or, connected by their tendrils to trees, they rise vertically, even to the summits of those which crown the forest. The leaves are large, smooth, or downy, serrated, lobed, or entire. The leaves and footstalks of the white or yellow grapes, change from a green to a yellow color, late in autumn; and those of the red or black grapes, to a reddish hue. The blossoms are produced in long clusters or racemes, from the wood of the same year; they possess a fra-

grant odor. The fruit is in clusters, the berries round or oblong; their color varying from white or yellow, to red, to blue, or to black. The pulp contains a juice, rich, saccharine, and abundant, of surpassing flavor. The berries contain, from one or two to five small stones. Those, however, of the Ascalon, or Corinth, and the Sultana have none.

The vine is a native of the temperate regions. Its history is traced to a very ancient date in Persia. It is cultivated extensively for wine in every part of Europe favorable to its growth, from the Mediterranean sea to the latitude of 51°. Also in South Africa, and the African isles of the Atlantic, and in Greece. It is also cultivated in Barbary, and Egypt, and in all those parts of Asia which are possessed of a suitable climate; but not, however, so much for wine, its use being forbidden to the disciples of Mohammed. It does not flourish within the tropics; it may, indeed, grow there, but produces but little fruit, except in the mountainous elevations. Yet in some tropical countries, as at Bombay, where unceasing summer allows no rest to the vine, or its wonted repose, they give them by *artificial means*, a suitable season for slumber, and the vine, thus recruited, becomes productive. [See Cultivation.]

The vine is extremely long lived: It is stated that some have lived six hundred years; and according to Bosc, there are vines in Burgundy, four hundred years old. The native vines of America, as of other countries, ascend to the summits of the highest trees of the forest, growing sometimes of enormous dimensions. And vine timber, is stated to be of very great durability; of this fact, the long life to which the vine tree will attain, might alone be deemed sufficient evidence. It is deemed too valuable to be applied to common purposes, its use being confined, almost exclusively, to furniture, statues, &c.

Uses. — The fruit of the grape has been highly prized, in all ages, as a delicious, and wholesome dessert fruit. They are used as preserves, in pastry and in cookery. Sugar is also made from the juice of the grape, good but coarse grained; and the unfermented juice, when boiled to the consistency of honey, is esteemed a delicious article of food, being used, both in Europe, and in the Mohammedan countries, either with or without sugar, as butter or honey is used.

Raisins are prepared from the matured fruit of the grape.

The clusters, without being separated from the branches, are dipped in a ley of wood ashes, containing a small portion of the oil of olives, and then dried by exposure to the sun. By another mode, though not so good, they are dried in an oven. Raisins are esteemed, not only as a delicious, but a wholesome and nutritious food, when used in moderation. They are of extensive use, both for the dessert, and in cookery. A good wine may also be prepared from them.

The grapes which are imported from France and Spain, are packed in alternate layers of saw-dust, which has been thoroughly dried in an oven: and we are assured, that grapes may be preserved a year, by being gathered in the afternoon of a dry day, and inclosed in a dry, tight cask; being laid singly, and in layers, between alternate layers of thoroughly kiln-dried bran.

Sherbet constitutes a cooling and wholesome drink of the Mohammedans. It consists of the unfermented juice of the grape, mixed with water, sugar and spices.

The unfermented juice of the grape, which constitutes the essential elements of wine, consists of, 1st, water; 2d, sugar; 3d, tartaric acid; 4th, mucilage; each in different proportions. But after fermentation, wine contains, by chemical analysis, 1st, water; 2d, alcohol; 3d, sugar; 4th, tartaric, carbonic, and malic acids. It also contains tannin, a coloring matter, and a volatile oil.

Gross or watery wines are extremely difficult to preserve and manage. It is far otherwise with those which contain a suitable proportion of the essential elements; these being comparatively of very easy management. Where the elementary principles are deficient, they should be added at once in the beginning, and before the fermentation has commenced.

In modern France, sugar is now added, when its presence is essentially wanting; and vineyards which before would never make anything, or but very poor wine, are now, by this addition alone, rendered productive in good wine; and the sugar produced from the potato, is now, it is said, much used for this purpose in that country; and for this purpose it seems to be peculiarly adapted, its taste being intermediate between the sugar of the cane, and the sugar which is produced from the grape.

From a pound and a half of potato starch, one pound and a quarter of crystalline brown sugar has been obtained.

And starch, according to Davy, is converted into sugar by the very simple process of boiling in very diluted sulphuric acid. One hundred parts of starch, four hundred parts of water, and one part of sulphuric acid, by weight, are kept boiling for forty hours; the loss of water by evaporation, being supplied by new quantities. The acid is to be neutralized by lime, precisely as the acid which is contained in the juice of the sugar-cane is neutralized, and the sugar is crystallized by cooling.

The moderate use of good wine is deemed wholesome, especially to convalescents recovering from malignant fevers, and to those of debilitated habits, as it accelerates the circulation. On the other hand, its too liberal or immoderate use, undermines the constitution, and lays the foundation of a train of diseases. It paralyses the mental faculties, and induces those disorders of body, which not uncommonly terminate in death.

The varieties of the Grape are very numerous. The following comprises a selection of the best varieties known.

VARIETIES.

In the arrangement of grapes, I have divided the whole into four sections.

Section I. Those called Chasselas grapes; these are early.

Section II. Those called Muscats, or Frontignacs. The Muscats are more tardy in ripening than the Chasselas grapes.

Section III. Other highly approved foreign varieties.

Section IV. American grapes.

SECTION I.

CHASSELAS GRAPES.

The Chasselas grapes are in high estimation at Paris, and in the north of France, as well for their excellent quality, as for their early maturity.

*WHITE CHASSELAS.

ROYAL MUSCADINE, D'ARBOYCE, For. Lindley.

CHASSELAS DE FONTAINELEAU, Bon Jard. SWEETWATER.

The wood grows pretty strong; the bunches are large

and shouldered; the berries are large, round, greenish yellow, golden or amber colored at maturity; the flesh is juicy, rich, vinous, and excellent; a capital and very productive variety. At Paris it is generally cultivated on walls; near Boston it is considered one of the very best for our climate; ripening well its fruit in open culture, in favorable seasons and situations. A gentleman here of great experience and observation, is confident that the Sweetwater, and the Chasselas de Fontainbleau, are but one and the same; and that the difference which they sometimes assume, is owing to no other causes, than a difference of exposition.

*GOLDEN CHASSELAS.

CHASSELAS DORÉ, BAR SUR AUBE, Duh. Bon Jard.

RAISIN DE CHAMPAGNE, Bon Jard. p. 366.

YELLOW CHASSELAS OF THOMERY.

The wood of this fine variety is of medium vigor, the joints short; by this it is distinguished from the White Chasselas. It is also a fortnight earlier than that variety, but is not so exuberantly productive. The bunches are large; the berries large and round, of a yellow amber or gold color, melting, pleasant, sweet and excellent. The bunches of this variety are somewhat peculiar, having mostly quite large berries, intermixed with some few of small size on the same bunch. This fine variety has been introduced by S. G. Perkins, Esq. and produces good crops in open culture in warm expositions. To produce great crops and enable the fruit to set well, it must be screened from high winds from the time of blossoming, till the fruit becomes of the size of peas. The *Chasselas Doré*, *Bar sur Aube*, of the old Duhamel and the Bon Jardinier, must not be confounded with the *White Chasselas*, or *Chasselas de Fontainbleau*.

BLACK CHASSELAS. Lindley.

CHASSELAS NOIR, of the French.

BLACK MUSCADINE, of the English.

The bunches are the size of the White Muscadine; the berries are of a globular form, of a black color, and covered with blue bloom; the flesh is rich and of very good flavor.

MUSK CHASSELAS. Duh. Bon Jard.

CHASSELAS MUSQUE, Bon Jard. Duh.

The bunches are of medium size; the berries are round and of moderate size, of a green or greenish yellow; the

pulp is sweet, high flavored, and musky ; this variety is rather later than the Golden and White Chasselas.

RED CHASSELAS. Bon Jard. For. Lindley.

CHASSELAS ROUGE, Bon Jard. RED MUSCADINE.

The bunches are of medium size, but very compact ; the berries smaller than the White Chasselas, of a dark red color, sweet and of good flavor. This variety is not so early as the White Muscadine.

VARIEGATED CHASSELAS. Neill. Lindley.

A new variety raised by Mr Knight, from the seed of the Chasselas, fertilized by the pollen of the Aleppo. The berries are striped, and very beautiful, with a thin skin, and juicy. The leaves in autumn become variegated with red and yellow ; a very productive and hardy variety, ripening well in the open air. Thus has Mr Neill described it ; but according to Mr Lindley, the bunches are long, the berries rather small, globular, deep purple next the sun, tender, very saccharine, and of pretty good flavor.

SECTION II.

MUSCATS, OR FRONTIGNACS.

The Muscats or Frontignacs, are highly esteemed for their delicate and delicious musk flavor. They are not quite so early in their season of maturity as the varieties of Chasselas.

BLACK FRONTIGNAC. Forsyth. Lindley.

BLUE FRONTIGNAC, VIOLET FRONTIGNAC. Speechly.

MUSCAT NOIR, of the French.

The bunches are rather short, and below medium size, and loosely formed ; the berries are of medium size, round, black, and covered with blue bloom ; the flavor is vinous, sweet and musky. This is not so highly esteemed at Paris as the White Muscat. It rarely ripens in open culture, either there or near Boston.

RED FRONTIGNAC. Mr Neill.

GRIZZLY FRONTIGNAC. Ib. MUSCAT ROUGE. Bon Jard.

The bunches are rather large, long, and moderately compact ; the berries are pretty large, round, of a red color

and of a high vinous and musky flavor. This variety ripens earlier than the White Frontignac, and although not so high flavored as that variety, it is more esteemed in France than the Violet and Black Muscat.

RED MUSCAT OF ALEXANDRIA. For. Lindley.

RED FRONTIGNAC OF JERUSALEM, of Miller.

It resembles the White except in regard to color; the bunches are rather large, and shouldered; the berries rather large, oval, of a red color; the skin is thick, the flesh firm, juicy, saccharine, musky, and high flavored. Bradley calls this one of the very best of grapes. It is also said to be more esteemed about Paris, than the White Muscat; and there, against good walls, it ripens very well.

***WHITE FRONTIGNAC.**

MUSCAT DE FRONTIGNAN. MUSCAT BLANC. Bon Jard.

The bunches are very long, conical, compact; the berries the size of the Chasselas, round, a little elongated, white, but slightly yellow next the sun; the pulp white, cracking, of an exquisite sweet and musky flavor. Very productive. Highly esteemed near Boston, where its cultivation is principally confined to vineries, as it seldom comes to maturity in out of door cultivation.

WHITE MUSCAT OF ALEXANDRIA. Mr Neill.

MUSCAT D'ALEXANDRIA BLANC, Bon Jard.

PASSE LONGUE MUSQUE, Ib.

MUSCAT OF JERUSALEM, Miller.

PASSE MUSQUE'E, Hort. Soc. Cat.

The bunches are very large, long, irregularly formed; the berries very scattering, large, oval, of an amber color at maturity. The skin is thick; pulp hard, musky, juicy, racy, and high flavored. The berries have one or two seeds or none. Highly esteemed by the English; it is also highly esteemed at Paris; but they consider their climate too cold for all the Muscats. The Muscats are there placed in the angle formed by two walls, the one facing east, the other south. In the Catalogue of the London Horticultural Society, the Malaga is put down as a synonyme of this; but I have doubts on the subject.

WHITE MUSCAT OF LUNEL. Speechly.

The bunches are rather large; the berries are large, oval, of a fine amber color, sometimes clouded with russet next the sun. The skin is thin, the flesh delicate, juicy, and vinous. A productive variety.

SECTION III.

OTHER HIGHLY ESTEEMED FOREIGN VARIETIES.

SUBSEC. I.—BLACK, BLUE, AND PURPLE GRAPES.

***BLACK CAPE.**

The bunches are very large and shouldered, sometimes weighing over two pounds; the berries extraordinary large, oval and black; of excellent flavor and quality. In highly favorable seasons and situations, it ripens well in the vicinity of Boston in open air. Imported by S. G. Perkins, Esq. from the Cape of Good Hope. An acquisition to the country. It is a most productive variety; and three vines in open culture have ripened at Mr Perkins's more than 500 pounds in a single season.

BLACK DAMASCUS. Lindley.

The bunches are middle sized, and loosely formed; the berries are globular and of different sizes; the large berries have two seeds, the small have none; their color is black; flesh delicate, juicy, and of most superior flavor.

***BLACK HAMBURG.**

WARNER'S BLACK HAMBURG, according to Lindley.

The bunches are large, well shouldered and compact; their breadth is nearly equal to the depth; the berries large, oval, of a deep purple color, or nearly black, and covered with a blue bloom; the flesh is tender, saccharine, and of excellent flavor; a very productive and excellent variety; a great favorite at Boston, and much cultivated in their grape houses. In favorable seasons and situations it ripens at that place in open culture. The wood of this variety is strong and luxuriant; the clusters of fruit are beautiful, and sometimes weigh two pounds.

BLACK LOMBARDY. Loudon's Mag. Lindley. For. West's St Peter's, Lindley.

The wood is short jointed; the bunches are long and large shouldered; the berries are large, round, black at maturity; the skin is thin, the pulp juicy and high flavored.

BLACK PRINCE. Neill. Hort. Trans.

LISBON, or PORTUGAL, according to some.

The leaves are broad, deeply lobed, widely serrated,

their long footstalks tinged with red. The bunches are very long, sometimes, but rarely, shouldered; the berries are oval, dark purple, and covered thick with blue bloom; the flesh is pale, juicy, sweet and well flavored; each usually containing five seeds. This excellent grape, it is stated, sometimes ripens even on the open walls in the south of England; the bunches have sometimes weighed a pound and a half.

BLACK RAISIN GRAPE. Lindley. For.

The bunches are large, long; the largest are shouldered; the berries are large, black, of an oval form; the skin is thick, the flesh is firm, juicy, and very high flavored. The wood is long jointed.

BLACK ST PETER'S.

BLACK GRAPE from Palestine, Speechly.

The bunches are large, long, sometimes shouldered; they resemble the Black Hamburg, but are longer; the berries are large, roundish oval, of a black color, and thin skin; very juicy, delicate and fine flavored. Near Boston, this grape is seldom cultivated, except under glass.

MILLER'S BURGUNDY.

LE MEUNIER, MORILLON JACONNE'.

The bunches are short and compact; the berries small, round, black, and covered with blue bloom; the flesh is tender, juicy, very sweet, and good flavored; the under surface of the leaves, is covered with hoary down like meal; hence the name of *Miller's Grape*. One of the hardiest varieties, and extensively cultivated in Burgundy for wine.

***CONSTANTIA.**

The wood of this variety is large; the leaves rough and downy; the bunches are of good size; the berries are round, of a purple color, and of a most delicious sweet flavor. The fruit ripens well in the open air in our climate, but only in highly sheltered situations. The berries contain but two seeds, and sometimes but one. This grape was imported by S. G. Perkins, Esq. from the Cape of Good Hope; and is supposed to be one of the most valuable in the country, and remarkably productive.

ESPERIONE. Hort. Trans. Vol. III. p. 93.

The bunches are large, the size of the Black Hamburg; shouldered, pretty compact. The berries are round, or flattened at the head, of a deep blue or black color, and

covered with bloom. The flesh adheres to the skin ; and though neither melting or high flavored, is pleasant. The Esperione is productive to an extraordinary degree, very hardy, very early, equally so with the Sweetwater and Muscadine ; and in unfavorable seasons, has a decisive advantage over these varieties.

FRANKENTHAL. Lindley.

FRANKENDALE.

The bunches are large and well shouldered, they somewhat resemble the Black Hamburg. The berries are oval, flattened at the head, indented at the side, of a purple or black color, covered with blue bloom ; the flesh is tender, juicy, rich, sweet, and of excellent flavor.

GROS GUILLAUME. N. Duh.

The bunches very large and compact. The berries are large, oval, black, and covered with azure bloom ; the skin is thick, the flesh green, melting, the juice abundant, and without color, pleasant and sweet. They have generally three small seeds. It produces abundantly, ripening the middle of September ; in good years it ripens well on espaliers. Its cultivation is not yet extended in the environs of Paris, but it merits to be cultivated for the table.

GROS MAROC.

The bunches are of good size, sometimes very large ; the berries are large, oval, of a dark purple or violet color, and covered with bloom ; the skin is thick ; the flesh juicy and high flavored. It ripens in open culture near Boston, but only in favorable seasons and situations.

LANGFORD'S INCOMPARABLE. Lindley.

The bunches are of good size, compactly formed and shouldered ; the berries are of moderate size ; the smallest are round, the largest oval, of a dark purple color, covered with blue bloom. The flesh is tender, juicy, saccharine, and resembles the Miller's Burgundy. Mr Lindley states that a single vine growing at Mr Langford's, produced two hundred and twentyfive pounds in a single year ; he esteems it the best and most hardy out of door grape known in that country.

REGNER DE NICE.

A large black grape of high reputation, very recently imported by Mr Perkins.

TEINTURIER. N. Duh. p. 150.

ALICANT, Lindley.

BLACK SPANISH, Speechly.

BLACK PORTUGAL, Hort. Soc. Cat.

GROS NOIR D'ESPAGNE, Bradley.

The leaves are small, and deeply divided into five lobes; and in autumn variegated with red and yellow, and beautiful; the bunches generally small, oblong, compact; the berries round, black, covered with blue bloom, their diameter seven to eight lines; flavor tolerable; the flesh, juice, and seeds are red, and are used for coloring other wines. Ripe at Paris 15th September.

SUBSEC. II. — RED OR REDDISH PURPLE GRAPES.**POONAH.** Hort. Trans. Vol. iv. p. 516.

The bunches are large, well shouldered, tapering to a point; the berries are nearly oval; pale red in the shade, but darker red next the sun; sweet but not very juicy; they have generally but two seeds. This vine was introduced from Bombay by Sir Joseph Banks in 1817. The grape keeps a long time, and is extensively cultivated at Poonah, and the ripe fruit sent thence annually to Bombay and its dependencies. This grape eminently deserves trial.

RAISIN DE CARMES. Hooker's Pom. Lond. Pl. x.

RAISIN DE CARG, For. Neill.

The vine is vigorous and bears well; the fruit is in long, loose bunches; the berries very large, interspersed with a few of small size, of an irregular oval form; the skin is rather thick, of a dusky reddish purple, covered with bloom; the flesh is rather firm, extremely rich, though somewhat acid; the seeds are large, seldom more than one.

RED HAMBURG. Mr Neill.

WARNER'S RED HAMBURG, Ib.

BROWN HAMBURG, Hort. Soc. Cat.

GIBRALTER, Ib.

The bunches are large and similar in size and shape to the Black Hamburg; the berries rather large, oval, dark red or purple; the skin is thin; the flesh juicy, delicate and vinous. This variety according to Mr Lindley, is the famous Hampton Court vine.

SUBSEC. III. — WHITE GRAPES.

EARLY WHITE MUSCADINE. Mr Neill. For.

WHITE MUSCADINE, ROYAL MUSCADINE, Pom. Mag.

AMBER MUSCADINE, For.

EARLY WHITE GRAPE OF TENERIFFE, of Speechly.

The bunches are generally small, but very numerous; but they are sometimes considerably large, loosely formed and shouldered; the berries are round, medium sized, of an amber color; the flesh is firm, saccharine, rich, but not high flavored; very productive — and for the certainty of its ripening, it is considered one of the best European varieties for a northern climate.

BORDELAIS. Bon Jard.

VERJUS, BORDELAIS, Bon Jard. p. 367.

The bunches are compact and very large, often of extraordinary size; the berries are very large, oblong, pale yellow; the flesh hard, juicy, and agreeable at maturity. A very late variety; its principal use is for its verjuice or for cooking, for which purpose it is gathered in an immature state. There is a red or black variety possessing the same qualities.

WHITE CORINTH.

CORINTH BLANC, Duh. and Bon Jard.

The bunches are small, oblong, compact; the berries very small, round, yellow, juicy, sweet, and without seeds. The *Violet Corinth* differs from this, only in color — and is probably identical with the *Black Corinth*, *Zante*, or *Black Ascalon* — known in commerce as the *Zante currants*, which we receive from the Mediterranean in a dried state. It has been estimated that 6000 tons are annually shipped from the Ionian Islands.

MALMSEY MUSCADINE. For. Lindley.

MALVOISE'S MUSQUE, of Bradley.

It resembles the White Muscadine, but the bunches and berries are smaller; it is very sweet and of high flavor; it bears well and is a valuable grape. It requires a vinery in England — so say Forsyth and Lindley. Bradley says it is one of the richest musked grapes — that it came from Montserrat and grows plentifully about Turin.

PITMASTON WHITE CLUSTER. Hort. Trans.

Raised by John Williams, Esq. of Pitmaston, from the

seed of the *Auvernat* or *Miller's Burgundy*. The bunches are rather larger than the *Auvernat*, compactly formed; it ripens earlier than that variety or the *Sweet-water*. The berries are round, a little flattened at the apex, of an amber color, but bronzed with russet next the sun; the flesh is tender and pleasant.

QUEEN'S.

The bunches are large, berries round, white, of a good size, and of fine flavor; the vine is luxuriant; this is a variety lately received here, and was sent to Col. Gibbs, of Sunswick, New York, from Vienna. It ripened well in 1831.

SYRIAN. Mr Neill.

One of the coarsest of the grape kind; the bunches large, broad shouldered, of very regular form; the berries are large, white, oval; the pulp firm and hard, of tolerable flavor if well ripened; an excellent bearer; and the bunches when ripe will remain many weeks longer than any other variety. This grape would not probably ripen in the open air in the climate of New England. Mr Speechly has stated that he raised at Welbeck a bunch of this variety measuring nineteen and a half inches in breadth, twentyone and three fourths inches in depth, in circumference four and a half feet, and weighing nineteen and a half pounds. This is supposed to be the kind mentioned, Numbers XIII. 23.

TOKAY. Duh.

WHITE MORILLON, Speechly's syn. GRIZZLY MUSCAT?

The branches are of moderate size, compactly formed; the berries inclining to oval, are rather small, faintly tinged with gray or red; saccharine and pleasant. This grape ripens in good seasons near Boston in open culture; and is the variety of which the celebrated Tokay wine is made.

VERDAL. Mr Niell. Bon Jard.

VERDELHO, Ib. Bon Jard, p. 367.

The vine grows vigorously; it is remarkably productive; the bunches are variable in size, but beautiful; the berries are oval, of a fine amber color, of a very rich saccharine taste and good flavor. Much cultivated in Languedoc and there called *Verdal*. It was brought from thence to Paris, where it is highly esteemed as the best and sweetest

of all dessert grapes; but it there requires a warm summer and the best exposition to bring it to maturity, when the bunches become beautiful, the berries large, each containing two seeds. This in the Verdellio Grape, of Madeira, of which Madeira wine is principally made.

WHITE HAMBURG. Speechly. Lindley.

WHITE PORTUGAL, WHITE LISBON, Hort. Soc. Cat.

WHITE RAISIN, RAISIN MUSCAT.

The bunches are large and loosely formed; the berries large, of an oval form and greenish white color; the skin is thick, the pulp hard, and the juice sweet, slightly mixed with acid. Mr Lindley informs us, that this grape is by many much admired, that it keeps long, and is the same that is annually imported into that country from Portugal, to the value of £10,000 in the winter season, and sold in the shops for Portugal grapes. We may perhaps ascribe its long keeping to its hard pulp and thick skin, and would suggest that it might prove a profitable article of cultivation and export from the Southern States.

WHITE ST PETER'S.

SAINT PIERRE, Bon Jard. 1828, p. 368. Moscow.

The bunches are large, very beautiful and compactly formed; the berries are round, white and excellent. My impression is that this grape must be a highly valuable new variety and well deserving trial with us.

ALEPPO. Speechly.

RAISIN SUISSE.

The bunches are formed of berries of different colors; the berries are round, of medium size; some are black, some white, but mostly striped with black and white; the skin is thin, the flesh juicy, and of superior flavor; the leaves are beautifully and variously striped in autumn with red, green and yellow. This grape is rarely cultivated near Boston except under glass.

SECTION IV.

AMERICAN GRAPES.

ALEXANDER'S.

SCHUYLKILL MUSCADEL.

This grape is a great and sure bearer. I avail of the description given by Mr Bartram, in a letter to Dr Mease. "It is a large grape, black or blue, the size of the *Vitis vinifera*, of the old continent; the grapes approach to an elliptical figure; they are, when perfectly ripe, as sweet as any grape; many persons think them too luscious. Before they are quite ripe, some think they possess a little of the stingy taste of the fox grape; but my taste could never discover it." Major Adlum states that he has made a wine of this grape, which Mr Jefferson has pronounced "worthy the best vineyard in France." Not so suitable for the climate of Boston as the Isabella and Catawba.

BLAND.

BLAND'S MADEIRA, MAZZEI.

This fine native grape does not ripen well in our climate except in favorable seasons. It is thus described by Mr Bartram in a letter to Doctor Mease, as inserted in Dr Mease's edition of Willich's Domestic Encyclopædia.

"The bunches are large, branched and well shaped, six or eight inches in length; the berries large, and round or oblate; when perfectly ripe, of a dark purple or red wine color; the juice sweet and lively, having a little musky flavor, with a small portion of an agreeable astringency, somewhat like our best bunch wild grapes, though much sweeter than any of them. If this grape is what I take it to be, a genuine American, it is a hybrid, or variety."

CATAWBA.

This superior variety was introduced to notice by Major John Adlum, of Georgetown, D. C. and is esteemed by him the very best native grape for making wine, known; and the wine made by him at his vineyard of this grape, is deemed by good judges excellent. The bunches are of very handsome size and form, and shouldered; the berries are of a deep purple next the sun; the skin is thin, juicy, sweet, rich, and vinous, with a very little of the native, or musky taste. This vine is very vigorous and hardy, re-

quiring no protection, and is a great and certain bearer. This and the Isabella are, for the climate of New England, decidedly the very best native grapes hitherto known with us. Mr Adlum has stated that he has no doubt but by his discovering the Catawba grape to be an excellent wine grape, that it will be worth to the United States one hundred millions of dollars before the end of this century. See his *Memoir on the Cultivation of the Vine in America*.

ELSINBURGH.

This grape is small, very hardy, and very productive ; the fruit of a blue color, very juicy and sweet, free from pulp and musky taste.

ISABELLA.

This fine native grape was introduced into New York about sixteen years since, by Mrs Isabella Gibbs, the lady of George Gibbs, Esq. of St Augustine, then a resident of Brooklyn, L. I. It was received from Dorchester, South Carolina, and was named Isabella, in honor of that lady, by William Prince, Esq. of the Linnæan Botanic Garden. From him I first received this vine, about 1820. The vine is extraordinary for the vigor of its growth, and wonderful productiveness. It has been stated that a single vine in the garden of Gen. Swift of New York, produced above eight bushels per annum, during each of the years 1820 and 1821 ; and the astonishing produce which we have here witnessed, confirms our belief in all that has been stated. The bunches are of large size ; the berries are large, of an oval form ; of a dark purple color, approaching to black, and covered with bloom ; the skin is thin, with but very little pulp ; the flesh is juicy, rich, sweet, and vinous. By hanging the bunches in a room, it has been ascertained that they lose that very small portion of muskiness which they possess. This grape makes excellent wine, and requires no protection in our climate.

LUFFBOROUGH.

This grape, according to Professor Rafinesque, has berries very large, of a deep purple, pulp dissolving in a sweet musky juice. Major Adlum says, the Luffborough makes an excellent red wine.

ORWIGSBURG.

This is understood to be a very fine, sweet, white grape, found near Orwigsburg, on the Schuylkill, in Pennsylvania.

Professor Rafinesque speaks of three varieties, purple, white, and black, all good.

SCUPPERNONG.

Of this grape there are two varieties, the black and the white; both possessing similar qualities. The young wood is very slender, the leaves shining above and beneath. The fruit very juicy and sweet. Wine is made of this grape, of an excellent and very peculiar flavor. Much wine is said to be made of this grape in North Carolina. Many barrels are made in a single season from a single vine. They are trained on arbors over the large court which usually separates the main houses in that country from the kitchen, which is in the rear; and a single vine will soon cover a space of a hundred feet by forty. The climate of New England is not so well suited to this vine. Accounts have been stated [see New England Farmer,] of single vines which would produce forty bushels in Carolina. They are said to flourish, and their roots will find nourishment in sandy land, good for nothing else.

WORTHINGTON.

This grape, according to Professor Rafinesque, produces smaller berries than the Frost grape; the juice sweet and rough; of a dark red color. Major Adlum calls it a very great bearer, and states that the wine of this grape, mixed with the Schuylkill, gives it a degree of roughness, between Port and Claret.

CULTIVATION, SOIL, &c.

The grape vine is propagated by layers; also by cuttings, which should be cut of the length of two or three eyes, and close below the lowest eye, and set in a warm situation, and humid soil, with but a single eye above the surface; or it is raised even from the cuttings of a single eye. They may also be grafted at the root by the common mode of cleft grafting.

The vine requires a deep, light soil, and a warm exposition, to produce fruit of superior quality. In cold, moist, strong soils, the fruit is gross and watery, and later in the season of its maturity. The vine flourishes in soils of volcanic origin; also in calcareous soils, and even in sandy soils.

On land half covered with rocks they never suffer from drought and receive a double portion of the rains, and a double portion of heat from the reflected rays of the sun.

The vine is a native of the temperate climates, and requires a winter, — *or a suitable season of repose*. In the tropical countries, therefore, it becomes unproductive, finding no repose, nor its wonted season of rest — except only in the elevated regions of mountains. Yet in some tropical countries, as at Bombay, they give to their vines, *by artificial means*, a suitable time for profound rest and slumber, and they awaken to fruitfulness for a season. This repose lasts twentyfive or twentysix days. In October, and immediately after the rainy season is past, the roots are laid bare for fifteen or sixteen days; the vines are then pruned, and in about a week afterwards, the buds will begin to break. The roots are then recovered with soil, and the ground manured; water is also given morning and evening, till the fruit attains its growth; and afterwards but once in three or four days till the fruit is ripe. By varying the season of the operation, a succession of fruit is insured at all times.

The young wood of the European vines requires protection in the winter, in the Northern and Middle States. However the modes of training and management may vary, protection is alike necessary in all and every system; except, only, the wood of three years' growth, which with most varieties of the European vine, is deemed hardy.

In treating of the culture and management of the vine, I shall confine my remarks chiefly to its cultivation in the open air; and more especially to those modes of management which are practised in a country, one of the most enlightened on earth, and possessing a climate not very much unlike our own; where the vine has been cultivated as an article of commerce and subsistence, for two thousand years; and where six millions of acres are cultivated in vineyards.

From all the accounts which we have been enabled to receive, it will appear that the climate of America, in the latitude of Boston, the capital of New England, differs not very materially, in the average amount of heat and cold during the summer half of the year, from the climate of Paris, in the North of France. Their springtime, from its commencement, which is early in March, is obnoxious

to storms, and the occasional and destructive frosts of winter. Our springs, from their not commencing till a later period, are more frequently intermingled with the heat of summer; and the vine, with us, never, or but rarely begins to vegetate till the vernal frosts are gone. With us, vegetation slumbers long, and profoundly secure, immured in our winters so intensely cold, nor awakes till the danger is past. For the longer duration of their springs, their summers, and their autumns, we are more than recompensed, even in our winters, so rigorous and so fortunately prolonged; and in our skies, so serene and unclouded; and in a sun less inconstant, more intense in its heat, from its greater elevation.

In the middle and northern Departments of France, and in vineyard culture, the vines are kept low, like plantations of the raspberry, the vines being planted in close order. Or, they are trained to low stakes from two to four feet in height, which are renewed every year. When the vine has risen to a height sufficiently above, it is bent over and passed to the top of the next stake, and secured in its rear; its luxuriance being thus restrained.

The same system of restriction is practised at the *Clos de Vougeaud*. The vines being kept low, and the ground never manured. This is regarded as the best vineyard in France, and was sold during the revolution, and in 1794, for 1,100,000 francs. This vineyard is walled round. The soil is calcareous, on a foundation of limestone or calcareous rocks.

I subjoin in this place, the remarks of the Hon. John Lowell, from the New England Farmer, inserted by him. "From a history of the culture of the vine in France, which I have carefully gone over, I find that the plan of planting the vines very near to each other, in all the middle, and especially the northern Provinces, has been of high antiquity. In 1763 an innovator appeared in France. M. Maupin, in his treatise entitled "A new Method of Cultivating the Vine," contended that the vines should be planted four feet from each other. All France was alive to the question. The experiment was fairly tried, and failed, and the French returned to their old system of close planting and short pruning."

The finest grapes of France are those of *Thomery*. By enlarging particularly on their modes of cultivation, I am

describing not their's alone, but other systems too, whose principles may all here be found, this being the combined and perfect system of other most perfect systems. The principles which are in this system developed, not being adapted exclusively to the *vine*, but will serve to enlighten and instruct in regard to the management of *other trees and plants*.

The village of Thomery is situated in the Forest of Fontainebleau, about a league from the palace, and about twentyeight miles from Paris. It was formerly occupied by vineyards, producing a poor *vin du pays*, and has not been inclosed for the cultivation of table fruit, until the last fortyfive years. At present, says Mr Robertson, about six hundred acres are walled in for this purpose, in numerous small properties and divisions.

The first introduction of the system of training and managing the vine at Thomery, to the notice of the American public, is justly due to Mr Lowell. His account, which was inserted in the *New England Farmer*, was a translation by him, from the *Bon Jardinier*, for 1827, a work of 1000 pages, which has been annually published at Paris for seventy years, with continued improvements. In that work, this mode of training and pruning, and *this mode alone* is described by MM. Poiteau and Vilmorin, the distinguished editors, this mode being considered by them as the perfection of all and of every mode and system that had ever been devised. The system has since been introduced to notice in England, with more important particulars, by Mr Robertson, and his account in the *London Horticultural Transactions* is from the *Bon Jardinier* and the *Pomme Française* of the Comte Lelieur, and other sources. My account is combined from every source which has come to hand. I have incorporated, often verbatim, large portions of Mr Lowell's account, and some portion also of Mr Robertson's, and the account from all sources is as follows : —

A light and deep soil is that which is best adapted to produce grapes of excellent quality. In poorer soils the vine languishes ; in soils more consistent and strong, its productions will be too gross, too watery, and its fruit will have fewer good qualities. In the climate of Paris, the vine requires a warm exposition, in order to ripen perfectly its fruit, and it is seldom, except protected by a wall

facing to the south, or east, that it finds the heat necessary to its perfection.

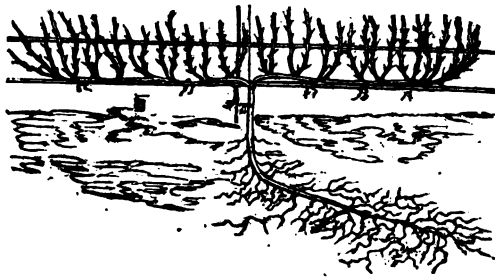
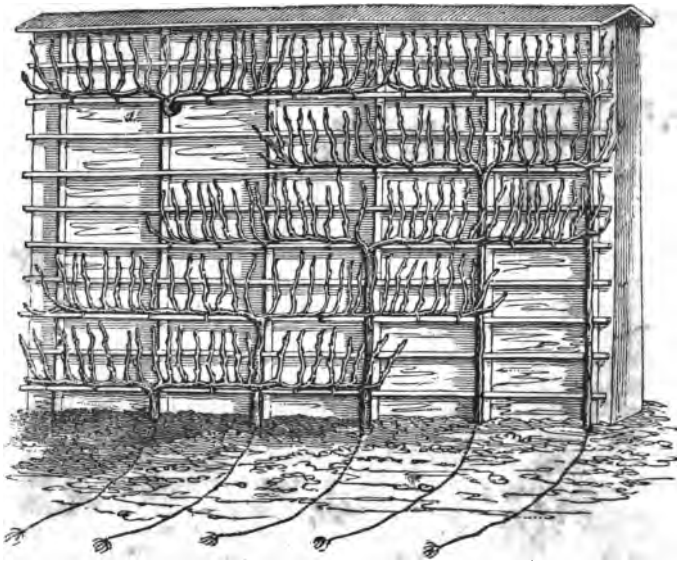
Of all the modes adopted, of training or of pruning the vine, we shall speak only of one; that practised at Thomery, a village near Fontainebleau, because it appears to us preferable to all others, both for its simplicity and its results.

As to its results all the world know them. The grapes of Fontainebleau are proverbial. It is well known that the most beautiful and the best grapes in the markets of Paris come from Thomery, under the name of the Chasselas of Fontainebleau.

It has been supposed, that the excellence of these grapes is owing to the nature of the soil, and the favorable exposure of Thomery. By no means. Thomery has not a happy exposition. The quality of the soil is inferior, in many parts sterile; it is on the side of a hill facing north and east, and sloping to the river Seine, which washes its base; the soil is clayey, cold, and almost incredibly hard to cultivate. We must admit, then, that it is to their *treatment* of their grapes *alone*, that their excellence and superiority is owing.

Before we describe their method, we would remark, that they are very cautious in selecting their varieties. They select their cuttings from such branches only as bear fruit distinguished by some superior quality, as size, early maturity, setting sure, or any other property they would wish to perpetuate; and they maintain that they thus actually improve their quality. The kind most in repute at Thomery, is the Chasselas de Fontainebleau. When other varieties are planted, the latest kinds are always trained to the lowest bar, as they are there found to ripen earlier.

The walls with which they form their inclosures, and against which they train their grapes or trellises, are about eight feet high, built of clay, plastered on the outside with a cement of lime and sand, and covered with a chaperon or coping, projecting nine or ten inches on each side. To this coping they attribute the good effects of protecting the wood and blossoms of the vine from the late spring frosts and heavy rains, sheltering the grapes and protecting them in good condition on the wall, even till after Christmas; and moderating the luxuriance of the vine.



The above plan of training the vine at Thomery was engraved from that in Loudon's Gardener's Magazine, and like that in the London Horticultural Transactions, is evidently wrong. The vines are represented as set two feet asunder, which is too far, rendering it necessary to bring the whole of the fifth cordon from the back ground, through a perforation in the wall. I have directed to place the vines but nineteen or twenty inches asunder, which enables them to cover completely the whole wall.

On the southern, eastern, and western exposures of the wall, they are furnished with trellises, the upright standards of which are two feet apart, and the horizontal rails are nine inches apart; the lower one six inches only from the ground.

The grape border along this wall, is dug or manured to the width of five or six feet, and to the depth of fifteen or eighteen inches. If the soil is moist or strong, they slope the border so as to throw off the rains from the wall; this prevents the accumulation of water at the roots of the vines, and is essential to success. When the border is prepared, they open a trench at four feet distance from the wall, and parallel to it, two feet wide and nine inches deep. They have ready prepared, a quantity of cuttings sufficient for the wall; these are about two feet long, and from being taken with a piece of old wood attached to the heel, are called *croisettes*, [cruciform,] but this form is not considered indispensable. These they lay across the trench at the bottom, with the top towards the wall, and at the distance of twenty inches asunder, and cover them with four or five inches of soil, and tread them down; at the same time raising the upper end which was towards the wall, nearly to a perpendicular; then fill the trench two thirds full, and spread the residue over the border. They then put into the trench, three inches of manure, which keeps the plants fresh and moist, and prevents the ground from becoming dry and moist.

In March, [November with us] they cut in the plant to two eyes above ground; they weed, dress and water the border during the first season, if needful, for the young planted grape requires a gentle degree of moisture. They tie the young shoots of the year to some supporters, and do everything to favor its growth. The second year, if any of the plants have more than one branch, they preserve only the strongest. They bury the new wood as the first year, and so on till they reach the wall. At every time they lay the shoot, they cut in, till they reach strong, ripe wood, well furnished with good eyes. It will generally take three years before it reaches the wall, but in the meantime they gather some fine bunches.

We now come to the formation of the cordons or horizontal branches. If the wall is eight feet high, it will require five cordons [or five tiers of branches]; the first six

inches from the ground, and the four others eighteen inches asunder, upon the horizontal rails of the trellis, which had been previously so arranged as to effect this object. The stalk destined to form the lowest cordons, [or horizontal branches to right and left,] will be cut just at the required height, if it has at that place a double eye. If it has not, you must cut it above the eye which is next above the lowest rail of the trellis. These two eyes are destined to furnish the two lowest branches or horizontal arms, the one to the right the other to the left on the lowest rail. The one that is too high must be bent down gently, and that which is too low trained up, and then bent. The first year however, these branches are trained obliquely, as they would not bear being bent and confined to their destined horizontal position till the next year, when both are finally secured to the trellis in the same horizontal line.

The second cordon [or horizontal line of branches,] being at two feet distance from the ground, cannot be formed as soon as the first; the third will be still later, and so on. Whatever be the height you design to advance your stalk or stem, you ought not to advance it more than twelve or fifteen inches each year, and preserve its lateral buds to increase its growth, and furnish fruit. But as soon as the stem has reached the requisite height, it is absolutely necessary to suppress and cut off all lateral buds on the main stem throughout.

Let us now suppose, that all the stems have arrived at their required or destined height, and that the two last branches are extended, the one to the right and the other to the left, to form the two arms of the cordon, [horizontal branches;] we will now show how these two arms are to be cut, till they have gained the length of four feet each.

The first year you will cut so as to leave three good eyes or buds, from four to six inches apart. Two of these eyes will form bearing wood, the third will be employed to lengthen the branch. Care must be taken to train vertically the shoots destined to bear the fruit; the other is trained obliquely the first year, and bent down and secured in its horizontal position afterwards. At the second pruning, the bearing shoots thus trained vertically must be cut, leaving only two eyes, or buds; and the terminal branch must in like manner be so trimmed, as that there will be

three eyes, two of which will be reserved for bearers, and the third to prolong the shoot as in the former year, and so proceed till each lateral branch shall have reached the length of four feet. Each branch ought then to have eight bearing eyes or shoots, all if possible, on the upper side. When all the five plants shall have reached their height and length, you will have on a surface of eight feet square, eighty coursons or bearing branches of two eyes each, each producing two branches, which will each bear at least two bunches of excellent grapes, or three hundred and twenty bunches on eight feet square of surface, [sixty-four square feet.]

According to Mr Loudon, at Montreuil, they practise a more expeditious, though perhaps less perfect mode; and instead of requiring three years for the vine to reach the wall, the vines are laid in horizontally, a few inches beneath the surface, and their tops brought to the wall at once. In this case the vines are bent and surrounded by brickbats, and thus forced to throw out innumerable roots.

The eyes at the bottom of the shoots of the grape are very close together and extremely small. There are no less than six in the space of two lines, or the sixth of an inch. When you cut the bearing branch long, say one or two inches, these little eyes become extinct or lie dormant and do not push — but if you cut close to them, they develop — they grow and produce beautiful clusters. Able gardeners are well aware of this, they always cut their coursons or bearing branches at the distance of a line, (or one twelfth of an inch,) sometimes even less. It is for this reason that these branches never become long under their management. Those who are ignorant of the nature of the vine cannot conceive how a bearing branch shall have given fruit for twenty years, and not be at the end of the time an inch long.

As soon as the young shoots of the vine have grown to a sufficient length, they are attached to the treillage, the stronger ones first, but loosely, until they have acquired sufficient elasticity. Great caution is here necessary; you ought not to force them into a vertical position till the berry is large, for they break off easily when young.

The lateral shoots which break near the eyes on the young wood, and the tendrils, should be suppressed while young. And if there be more than two buds which start

from the same courson, [spur,] the supernumerary ones must be suppressed, even though they exhibit fruit. Two bourgeons [branches,] each decorated with two beautiful clusters, are more valuable than a greater number of inferior size. But caution is here necessary; those supernumerary shoots which start from the base should not be removed too soon, for if removed too suddenly it gives a shock to vegetation, or occasions wasteful bursts of sap; you wait until the wood has acquired some consistence and until new channels are provided for the expenditure of the sap by the expansion of the leaves, and until after the grapes are set.

At Thomery, the young wood is pinched at its extremity after the bloom is set, as soon as it reaches the cordon next above it. This has the effect of momentarily suspending the flow of sap in these shoots, and by that means it accelerates their maturity and renders them more ligneous. It promotes the growth of the eyes, and is indispensable for filling the lower eyes of the spurs on which cultivators rely for the next year's crop; pinching or stopping the wood either prematurely or tardily is alike productive of bad consequences. Weak shoots are pinched sooner in proportion to their strength, but none are permitted on any account to push beyond the cordon. Should it appear that the shoots of the extremities of the cordons [horizontal arms,] impoverish those of the centre, the former are pinched repeatedly until the equilibrium is restored.

The season they generally prefer for the winter pruning, is from the first of February to the first of March, before the first movement of the sap takes place. The earliest pruned vines are found to break first. The vigneron avoids cutting close to the eyes, lest they might be injured by the wood dying down to them, the wood of the vine, from its spongy nature, not healing readily and being liable to decay at a wound. To guard against this they always cut midway between the eyes, sloping the cut to the opposite side of the shoot, so that the eye may not be damaged by its bleeding.

When vines are planted at once close to a wall, and in a level, deep border, and at an extended distance, they absorb an immoderate degree of nourishment, which gives rise to a rank and late vegetation, which retards the ripen-

ing of the fruit. At Thomery the vines being planted so close, have a more limited range for food, and the numerous roots produced by the frequent laying in of the stems, occupy the sloping borders so fully as to prevent any redundancy of moisture, and excess of nourishment; all luxuriance is restrained; by this means the branches complete their growth within the bounds prescribed, they are furnished with short well ripened shoots, closely set with bearing eyes, which, when the ground is well manured, seldom fail to produce abundant crops.

We admire, say Messrs Poiteau and Vilmorin, as many others do, those branches of the vine, which are carried to two hundred feet in length, — and we admit that there are parts of a wall which can only be covered by branches, the roots of which are very distant, but we recollect that when a branch has extended beyond a certain distance, it no longer gives fine clusters *but at its extremities* — the spurs of the centre no longer produce anything but inferior bunches, [Grappillons] and generally die of inanition. This inconvenience doubtless occurred to the Thomery gardeners; and by an admirable calculation they fixed upon the length of eight feet for each vine; * * * yet though only eight feet in length, they do not throw out extraordinary shoots, because the plants being set but twenty inches asunder, their roots dispute or contend with each other for nourishment. The cover of the wall also, extending over the vine nine or ten inches, by contributing to check its too luxuriant growth, its fruit has all the qualities which it is susceptible of acquiring.

According to this system, when once the cordons are completed, the pruning and training becomes so uniform and simple, that it may be intrusted to any intelligent workman. But what may render the practice of still greater consequence in a northern climate, is, *that the fruit of these small spurs always ripens earlier than on the strong wood.*

TILLAGE, MANURING, &c. — In tillage they use no other instrument than the hoe, they stir the ground but lightly, lest they should injure or disturb the roots; this is done twice in the year, first after the summer training, which generally takes place [there] in May, and again when the leaves fall; the ground is besides always kept

perfectly clean and loose on the surface, to admit the air and dews. They manure their vines every three years, always preferring, old manure nearly consumed, and of a light warm nature. They are justified in this practice by the result, for their grapes are always superior in size and delicacy of flavor, to any others to be met with, either at Paris or elsewhere.

MANAGEMENT AND CARE OF THE FRUIT, &c.—While the fruit is yet very small, the bunches should be looked over, and the extremities of such as are very long, cut off, for they generally ripen late and imperfectly. Such varieties as the Frontignacs, which have very close bunches, should have their berries thinned out at the time when they are about the size of peppercorns. When the grape has nearly attained its size, it is beneficial to water the fruit from a water-pot in the form of rain. This makes the skin tender, and increases the size of the berries. You gradually uncover the berries and expose them to the sun to heighten the color, and improve the flavor; if the leaves are removed with this intent, they are separated at the extremity of the footstalk, which is left behind to attract the sap and nourish the bud at its base.

If they wish to leave them out till after frosts, they are either covered with paper bags, which are of use also in protecting them from insects and birds, or they are often preserved till Christmas by screening them from frost with cloth, matting, or fern. The fruit is always gathered in a dry day, if stored moist it would quickly spoil. Those intended for keeping are cut before they are quite ripe; some are hung up on hair lines, in reverse, with their shoulders down, as that position prevents the berries lying so close as to rot—and some are spread on beds of fern.

The mode recommended by Mr John Mearns, in the London Horticultural Register for 1833-4, of coiling the vine in pots, for the purpose of procuring fruit in the first year, may owe its success in part to some of the principles already explained. Cuttings of vines in this mode, of from three to fifteen feet in length, with a proportion of two years old wood, are deprived of every eye except the two uppermost, and coiled in a pot containing compost and surrounded with moss to keep them moist. These being placed in a vinery, artificial heat is applied, they are train-

ed in one single stem beneath the glass, and produce fruit the first year; as often as they fill the pot with roots, they are shifted. But in the second year much more fruit would probably be produced from a vine planted in a border in the far more easy and usual way.

M. Noisette, according to Mr Neill, trains grape vines to a low trellis three feet in advance of the walls where his peach trees are trained. These vines are planted but three feet asunder, each vine has but a single arm proceeding horizontally from a vertical stem. These arms extend six feet, being trained in one direction, each plant alternately secured to the upper and lower rail. M. Noisette showed him a triple contre-espalier of vines, the outermost trained to a rail only one foot from the ground; the second two feet high, and the third or inmost at three feet from the ground. It being, as Mr Neill states, a common remark of the vigneron, that the nearer to the ground the bunches are produced, the richer is the flavor of the grapes.

M. Noisette stated to Mr Neill that it was not uncommon to have a vine of a single shoot of the Muscat of Alexandria trained to the top of a south wall ten feet high, and over the Peach trees.

EARLY MATURITY. — 1st, GIRDLING, &c. Girdling affords a resource in cold climates, and unfavorable seasons; it not only hastens the maturity of the fruit, but increases its beauty and size. A portion of fine wood of the uppermost branches, should be selected, and the place where the operation of girdling is to be performed, should be just below the wood of the former year's growth, which should be strong and remain of good length: and as the effects of girdling are in the end, destructive to the branch, the operation should be performed on different portions of the same vine in alternate years. The most suitable period for girdling the vine is early in July, and as soon as the fruit is formed. With a sharp and hooked knife, make two circular incisions, around the trunk, and quite through the bark, at the distance of from one fourth, to three eighths of an inch asunder: then make a perpendicular cut and remove the ring of bark quite clean to the wood. If the vine is very vigorous, this section may soon close, in which case it must be reopened. [See Girdling, in the former part of the work.]

2d. Early maturity is induced by confining the roots to a very limited range near the surface of the earth, and by limiting their supplies of moisture. Or 3d, by securing the vines very near to the walls which are covered with a black paint formed of lime, tar and charcoal. The black color enables the wall to absorb and retain the heat of the sun's rays, which are given out gradually to the vine. But where the wall is farther removed from the vine, it must be rendered *white*, with paint or lime, that the heat of the sun's rays may be reflected.

In cold countries, according to Chaptal, and in vineyard culture, and where the vine requires the whole heat of the sun, the vines should be supported on trellises or stakes, or elevated on poles placed perpendicularly in the earth. And in this mode, the vines may be very closely planted. The earth being left uncovered, and receiving all the activity of the sun's rays and these reverberated, the whole plant is exposed to its action; and being so near, the produce may be thus multiplied on equal surfaces. But in warmer climates, the earth requires to be sheltered from the excessive heat of the sun, and the vines may be supported on arbors, or suffered to creep on the ground.

In vineyards, close planting is most expensive at first, but the ground is thus more suddenly and completely filled; and small vines are more easily managed than large ones. one thousand eight hundred vines to an acre may be esteemed a good and sufficient number, allowing the vines to be four feet distant in the row, and the rows six feet asunder. Or two thousand seven hundred, at four feet asunder every way. But our native vines require a greater distance.

The most favorable exposition for vineyards with us, on the shores of the Atlantic, is without doubt a south, or southwestern, removed as far as practicable from woods, swamps, or standing water. An easterly exposition does not suit them; the eastern sea breezes are unfavorable from their coldness and humidity.

Dr S. A. Shurtleff, from his successful experiments in his garden on Pemberton Hill, in Boston, has added his testimony to confirm the truth of the above position. He directs that the trellises should run in the direction of the southeast, and northwest, thus having a *southwestern exposition*, and he prefers horizontal training. The wood on the northeast side is never pruned at all, but is allowed to

grow, forming a vinous hedge, which defends the fruit from the humid and cold eastern and northeastern winds, which cause mildew, by chilling and enfeebling both the wood and fruit. While on the southwest side, the genial warmth is still further preserved by pruning all lateral shoots and tendrils, and useless wood. Late pruning, or pruning after July, as he justly observes, enfeebles the vine, arresting its growth and that of the fruit, and causing it to turn soft and sour, instead of ripening; — the leaves also should be preserved, being alike essentially necessary, and designed by nature to nourish the fruit, as well as to protect from the scorching sun by day, and the cold autumnal nights. By pursuing this method, he has during several years of trial, infallibly succeeded in obtaining good crops, while all other methods and positions have failed.

Vines trained to vertical walls, and growing in confined or humid situations, are subject to mildew; and on walls of this description which face due south, the sun during midsummer, never shines till an advanced hour in the morning; and the benefits are never but partial, from the oblique rays of a sun, which at noon day is nearly vertical.

The Hon. Richard Sullivan, of Brookline, whose successful cultivation of the vine is well known, had at one time suggested to me the idea of an inclined plane, as preferable to vertical walls, which cause mildew. Mr Lindergard, in Denmark, for the purpose of hastening the maturity of his grapes in his vinery, placed boards beneath the fruit with perfect success. In the *Annales d'Horticulture*, is contained an account, that in France in 1827, one portion of a vine growing under a south window, having ascended over the slated roof of the portico, it was found that the fruit on this part of the vine had become black, while the fruit on the other parts of the vine was still green.

In our own latitude, or the latitude of Boston, where, during midsummer, the sun at midday is nearly at the zenith, an inclined plane, or roof, or wall, sloping, and literally facing the noon-day sun, will afford an exposition, much more favorable to the vine than vertical walls; or at that angle which will face the sun at that time, when most of all, his rays are needed, or towards the autumnal equinox. Over this, and at suitable distance, the trellis may be elevated; and upon this, the vines displayed, whether they arise at the foot of the plane, or are brought up from

the distance of forty or fifty feet from the roots below. In such a favored situation, they will receive the full benefit of the morning sun, and the more effectual advantage of the noon-day sun, both by his direct rays and by reflection. The excess of moisture, the nightly dews, and a stagnant atmosphere, the combined causes of mildew, will be dissipated by the morning sun, or by the direct influence of southerly winds; or, by the indirect influences of northerly winds, in the eddies and counter currents.

The inclined planes, or roofs, or walls of wooden structure, by being shaded with a vegetable covering, are liable to speedy decay. But this objection does not apply to those with a covering of coal tar, or of slate; or to the cheap, enduring, and admirable coverings which are now formed of *zinc*.

From the experiments of Mr James Macdonald of Scotland, in his statement recorded by Mr Loudon, it even appears, that when the vines of the Black Hamburg and the White Muscat of Alexandria, were trained on trellises at the distance of about ten inches above the sloping roofs of glass, and exposed to the open air, and to the direct rays of the sun, and to the heat caused by the rays of reflection, that the fruit ripened equally as well, and as early, as did the fruit of those which were trained beneath its surface. And it is a well known fact, that at a certain angle of obliquity, the rays of the sun do not pass through common glass at all, or but partially, but are mostly reflected from its surface.

PAVING THE GROUND. — It has been remarked, says Mr Robertson, that vines and fruit trees planted against buildings with a pavement which prevents the ground from being either manured or cultivated, produce not only more abundant and finer crops, but are longer lived.

"At Thomery," says the Comte Lelieur, "the grapes on the lower cordon of a vine, planted to a wall of about fifteen feet high, having been injured by the drip of its eaves, dashing the earth of the border against them, the owner paved it for the breadth of about two feet from the wall. The good effects of this remedy were soon apparent, not only in the preservation of the fruit from injury, but in the improvement of its size and flavor; the reflection of the sun's heat from the pavement, augmenting both, and

hastening its maturity." The growth of the vine also, became more moderate and regular.

The foreign as well as native vines, succeed admirably in our cities; and especially so, when planted beneath pavements and in paved court yards. Not being so liable, in such situations, to suffer from excess of moisture, the quality of the fruit becomes proportionally improved, from the causes already explained.

When it is attempted to train a single vine with two or more sets of cordons, proceeding at unequal heights from the same vertical stem, the upper cordon becomes the *superior*, and the equilibrium is destroyed; and the lower or inferior cordons languish, being robbed of their nourishment by those above, and the tendency of the sap to pass uninterruptedly upwards.

If the position which is here assumed be correct, then the ingeniously devised system of the celebrated Mr Cobbet must fail in practice. I will first give the outline of his system, and then by a partial demolition, or by a partial inversion, and by one important alteration, this same mode will be made to appear in the likeness of another and excellent system for vineyard or open culture. His plan is as follows:—

From a strong vertical stem of about four or five feet in height, eight branches alternate, are in the third year trained horizontally, four on each side, and secured to the horizontal rails of the trellis; the destined space allotted to each being eight feet from the centre. Four only of these, are destined, and to be reserved for producing fruit in the following year, namely, two branches alternate, on each side, each of which is to be shortened in autumn to eight feet. The other four branches are cut off at the same time, to within one eye of the vertical stem; and in the following year, these same eyes will throw out the four branches of reserve, which are to be trained horizontally to their destined rails as before, and deprived of their lateral shoots as produced. While those other four branches, after they have once produced fruit, are never suffered to bear fruit again or to remain, but are in their turn cut off in the autumn to within an eye of the stem, to furnish the reserve wood for the next year. And thus the system is continued.

The following mode is recommended for vineyard culture. It conforms in the main, to the mode recommended

by Mr Bartram ; and also to the system of Mr Cobbet after its partial inversion : but differs in some essential particulars from both.

The first year suffer but a single shoot and that the lowest to grow, the supernumerary ones are to be checked and taken off gradually ; this shoot is to be trained to a pole, the lateral shoots to be taken off as they are produced at the distance of a single eye from the main stem. When a few feet in height, the top is occasionally nipped in. Late in October cut this down to three good eyes ; in November (if an European vine) bury with leaves, litter or soil. The next year, three good eyes only are suffered to grow, which are to be trained to a pole and pruned as before. In autumn preserve the two uppermost, which if strong, must be cut to the length of five feet, and trimmed throughout, and secured to the surface by hooks, and covered with soil. The remaining one is shortened to three good eyes and buried as in the former year. In the following spring two good stakes will be required ; the vines left at full length are each to be twisted several times around a pole and secured at the top, and these will throw out shoots from every eye, which will each probably produce two bunches. These bearing shoots are to be nipped in, four or five eyes beyond the fruit. The shoot cut down will this year furnish three shoots, these are to be trained as at first directed to another pole, for these three are to furnish fruit for the following year, and are to be pruned and laid down at full length in autumn. As to those which have once borne fruit, they are not permitted to bear fruit a second time, but are each cut down to two eyes, to furnish the reserve wood for the following year ; and so proceed till four bearing limbs are annually elevated and twisted around two poles, and an equal number of supernumerary or reserve branches are annually raised up and trained to two other poles. Always observe to cut so as to have your wood start from a low point, near the surface ; for this purpose it may be sometimes even necessary to cut back the old wood.

The bearing wood on trellises, in like manner, should in early spring, be bent and confined in a serpentine manner, with short turnings, or the ends bent downwards ; but the young reserve branches which must never be allowed to produce fruit the first year, should be trained straight, or with a little deviation.

The long canes of the vine, the production of a single year, if left to themselves, will only break and produce fruit at their extremities. To enable them to produce fruit throughout their whole length, *art* is necessary. Before vegetation commences in spring, the long cane or vine of the former year's growth, may, if in vineyard culture, be trained spirally, around a stake or pole. Or otherwise it may be tied in a coil; by either mode of treatment, the buds will break, and grow equally from its extremity to its base. When the buds have grown an inch or a little more, the vine may be uncoiled, and secured to its destined position on the rails or trellis. This art is perfectly understood by those who raise grapes in the vineries around Boston. In this way astonishing crops are produced.

The numerous and flourishing vineyards of America, which have been of late years established in the Middle, Southern, and Western States, for the manufacture of wine, consist principally of the native varieties which I have described. American grapes are found to do best for America in vineyards. It was deemed a capital error that European kinds were at first tried in preference. Ours require no protection in winter. The average value of vineyards in France per *arpent* (100 rods and 22 feet of our measure) as stated by Mr Young, was \$210 — but the very best vineyards were worth from \$2000 to \$3000 per *arpent*.

In making wine of the American grapes, some distinguished practitioners first grind the grapes by a roller, then bring the *must* at once to the proper standard or weight, which for wines as strong as Burgundy or Claret, should be 1.125, — equal to about 12½ per cent heavier than rain water, or sixteen degrees of Beaume's saccharometer. After remaining in the vat four days, more or less, according to the heat of the season, it is drawn off, or pressed, and removed to the cask. Where the grapes superabound in mucilage, sugar is added, and sometimes water, to bring all up to the proper standard.

The excess of fermentation to which wine is sometimes liable, from the heat of the weather, or from *weakness*, is sometimes arrested in its progress by sulphuring; but sulphuring, it is admitted, renders the liquor unwholesome; — or excess of fermentation may be restrained by black oxide of manganese. [See *Cider*. See *Vine*.]

When wine has partially undergone the acetous fermentation, the acid may be neutralized by salt of tartar; or seized by alkalies, ashes, chalk, lime, or litharge; the last is well known to be a poison; or the acid may be concealed by the addition of a saccharine substance. But such wine can never be *recovered*, inasmuch as the process of fermentation never retrogrades.

The muscadel flavor of Frontignac and of Cyprus wine, is said to be exactly imitated by an infusion of the flowers of *Meadow sweet*. Mountain wine, by the infusion of Florentine orris root, powdered, with a small proportion of orange and lemon peel; or by the addition of the bruised seeds of grapes. Sack by the addition of a spirit distilled from the leaves of Clary and malt spirits.

MALADIES.—The chief malady to which grapes are subject, in low and confined situations, is *mildew*. Mildew is supposed to arise from a slow circulation of the sap, and a debilitated state of the wood and fruit, caused by a chilly and damp or stagnant atmosphere, and perhaps by inaction. And it has been observed that the fruit which trails on the earth always escapes. Mildew is remedied by dredging the fruit with flour of sulphur, on its first appearance. But the most approved mode of applying the sulphur is as follows:

On the bottom of a vessel place a pint and a half of sulphur, on this lay a lump of good unslacked lime the size of a fist, and on this pour two gallons of boiling water; after the lime is slacked, stir it well, and when the liquor is cold, add more cold water, and stir it again, and as soon as the liquor has become clear, pour it from the sediment into a barrel which must be filled with cold water. When the grapes have attained the size of peas throw the liquid on the fruit with a syringe, and repeat this twice a week for three successive weeks. With *Willis's Syringe* whole vineyards may be despatched in a very little time.

C U R R A N T . — (*Ribes.*)

THE RED CURRANT is a low branching shrub ; the wood is smooth ; the leaves pubescent and doubly serrated ; the flowers are yellowish and in racemes, they are produced in April ; the fruit in clusters like grapes ; the berries round, smooth, of an acid taste. A native of the North of Europe.

The WHITE CURRANT is stated to be but a variety, produced by cultivation from the seed of the red.

The BLACK CURRANT is a distinct species, a native of the North of Europe and Asia. A low shrub, with smooth wood ; the leaves are three lobed, pubescent, with a strong odor ; the flowers are in racemes, the fruit in clusters, black, and odorous ; of an astringent taste.

USES. — The red or white currant is used as a dessert fruit, as it possesses a pleasant acid taste ; it is also used in pies, tarts, preserves, jellies, &c. Currant wine is made by adding to the expressed juice of fifty pounds of ripe currants, seven gallons of water and thirtythree pounds of good dry Havana sugar. This liquor is put into good casks which must never be quite filled, as the pulp must never be suffered to work out, as its presence is essential to the goodness of the liquor. The bung is left out fortyeight hours, then laid on loosely a fortnight, then driven tight, and in five months it will be fine and fit for use. The first young leaves of the common currant bush, gathered as soon as they put out, and dried on tin, can hardly be distinguished, it is said, from green tea. From the black currant a jelly is made, of considerable medicinal efficacy ; a wine is also made from them, reputed to possess far superior medicinal virtues to Port wine. This jelly has been highly recommended for disorders of the throat ; and as a necessary article in the stores of ships sailing to the East Indies. A liquor is prepared from the black currant, which Mr Forsyth states is possessed of great medicinal efficacy in obstinate coughs, &c. The currants for this purpose are bruised, and being placed in a jar, whiskey or any other species of alcohol is poured over them, the jar is then covered close for a fortnight ; after this the liquor is strained and bottled.

We are informed, by Mr Neill, that a small leaf of the black currant gathered in spring and laid for a few minutes in an infusion of Bohea tea, communicates its flavor, which has been compared to that of green tea.

VARIETIES.

BLACK ENGLISH.

The berries are of large size, and the trees are very productive.

AMERICAN BLACK CURRANT.

This possesses similar qualities to the preceding, but it is not so highly esteemed.

BLACK NAPLES.

This is a new variety, highly recommended.

CHAMPAGNE.

The fruit of this variety is pale red.

LARGE RED, or RED DUTCH.

The growth is strong and upright, the berries large, it is extraordinary productive and good.

LARGE WHITE OF SPANISH IMPERIAL, LARGE DUTCH WHITE.

The young wood grows upright. The berries and clusters are very large, of a yellowish white color, and excellent quality; it is extraordinary productive. The branches of the bearing wood trail beneath the weight of their fruit.

JEFFERSON or MISSOURI FRAGRANT CURRANT.

This variety is very distinct from the other kinds. Its growth is tall; its berries are very few, are black, and of ordinary quality; its flowers are in clusters of a yellow color, and extraordinary fragrance.

CULTIVATION, SOIL, &c.

The currant requires a rich soil, its cultivation is similar to that of the gooseberry, which see.

PRUNING. — "Mr Macdonald," says Mr Neill, [Edin. Ency. vol. x. p. 576,] "raises currants both red and white of the finest quality. He prunes the bushes at the usual season in midwinter, shortening the last year's shoots to an

inch and a half. Next summer the plants show plenty of fruit and at the same time throw out strong shoots. As soon as the berries begin to color, he cuts off the summer shoots to within five or six inches above the fruit. This is commonly done with garden shears, with which a man may go over half an acre of bushes in a day. Sun and air thus get free access, and more of the vigor of the plant is directed to the fruit; the berries are found not only to be of higher flavor, but larger than usual." Mr A. D. Williams of Roxbury, practises winter pruning on perfectly similar principles, and with the most decisive results.

GOOSEBERRY. — (*Ribes Uva-crispa*.)

A NATIVE of America and of Europe. A low branching prickly shrub, rising to the height of from three to six feet; the leaves are three lobed and sometimes pubescent; the fruit pendulous, hairy or smooth, round or oblong, its size sometimes equals that of a good sized plum; of a green, white, yellow, red or violet color; and of a sweet vinous, or acid flavor; a fruit wonderfully improved by cultivation. According to Loudon it is found wild in Piedmont where it is eatable, but astringent and neglected. In Italy and Spain scarcely known, and little esteemed in France. "A moderate temperature and humid climate seem best to suit the fruit." Cultivated in greater perfection in Lancashire than any other part of the world. But Neill observes, "It must be admitted that although the largest gooseberries make a fine appearance on the table, they are deficient in flavor, or their skins are thick and strong compared with some of smaller size." Some large kinds, however, are of good quality.

Uses. — The gooseberry is considered an excellent dessert fruit either raw or preserved in sugar; and, very valuable fruit for pies, tarts, sauces, &c. In cool cellars they may be preserved for winter use, in bottles filled first with gooseberries, and then with water, and closely corked and sealed. But by plunging the bottles into cold water which is to be heated gradually to the boiling point, they are said to keep better.

According to Phillips, wine made from green gooseberries is but a shade inferior to champagne; and the ripe black gooseberry affords a luscious wine. And he asserts that fields might be covered with this fruit for the making of wine, as profitably, as the vineyards of the South.

Champagne Wine, as we are informed, is in England very successfully imitated from the juice of unripe gooseberries. — The saccharine principle is in this case supplied by the addition of loaf sugar.

VARIETIES. — (*Chiefly from Lindley.*)

The following varieties from Lindley, the Pomological Magazine and Mr Hooker, are recommended by them as the best selection from many hundred varieties.

RED.

CAPPER'S TOP SAWYER. 24 dwts.

Branches somewhat drooping; fruit late, very large oblong, pale red, hairy near the base; very excellent.

CHAMPAGNE.

Branches erect; fruit late, middle size, somewhat oblong, dark red, hairy; most excellent.

FARMER'S ROARING LION. 31 dwts. 16 grs.

Branches somewhat drooping; fruit late, very large, oblong, dull red, smooth; the largest of all gooseberries.

KNIGHT'S MARQUIS OF STAFFORD.

Branches somewhat erect; the fruit late, large, roundish oblong, bright red, hairy, excellent.

MELLING'S CROWN BOB. 22 dwts.

Branches drooping; fruit rather late, large, oblong, bright red, hairy; very good.

OLD ROUGH RED.

Branches somewhat drooping; fruit small, round, dark red, very hairy; most excellent for preserving as gooseberry jam, and best for bottling when green.

WILMOT'S EARLY RED. Hooker's Pom. Lond.

One of the very best of all gooseberries and is cultivated by Mr Wilmot to a great extent in his celebrated fruit garden. He prefers it to all others he has seen. He states that it is of large size, very early, of excellent flavor and incredibly productive.

GREEN.

EARLY GREEN HAIRY.

Branches erect; fruit early, small, round, deep green, hairy; excellent.

EDWARD'S JOLLY TAR. 19 dwts. 17 grs.

Branches somewhat drooping; fruit early, of a middle size, roundish oblong, smooth, with yellowish veins.

MASSEY'S HEART OF OAK. 16 dwts.

Branches drooping, fruit rather early, large, oblong, smooth, with pale yellow veins; excellent.

NIXON'S GREEN MYRTLE.

Branches somewhat drooping; fruit late, large, oblong, smooth, tapering to the base, pale green.

PARKINSON'S LAUREL. 17 dwts. 18 grs.

Branches erect; fruit rather late, large, roundish oblong, pale green, very downy.

WAINWRIGHT'S OCEAN. 20 dwts. 8 grs.

Branches drooping; fruit early, large, oblong, or ovate, smooth; the largest of this color.

WHITE.

CLEWORTH'S WHITE LION. 19 dwts. 9 grs.

Branches somewhat drooping; fruit late, roundish oblong, slightly hairy, sometime nearly smooth.

CROMPTON'S SHEBA QUEEN. 18 dwts.

Branches somewhat erect; fruit early, pretty large, roundish oblong, downy; excellent.

MOORE'S WHITE BEAR.

Branches somewhat erect; fruit early, large, roundish oblong, hairy, or somewhat bristly.

SAUNDER'S CHESHIRE LASS. 20 dwts.

Branches erect; fruit very early, large, oblong, downy; excellent for tarts early in the spring, when few are ready for that purpose.

WELLINGTON'S GLORY. 23 dwts. 14 grs.

Branches erect; fruit pretty early, large, somewhat ovate, very downy; excellent.

WOODWARD'S WHITESMITH. 16 dwts. 7 grs.

Branches erect; fruit pretty early, large, roundish oblong, brownish when exposed, very downy; very excellent and more in esteem than any other gooseberry of this color.

YELLOW.

DIXON'S GOLDEN YELLOW.

Branches drooping; fruit early, pretty large, roundish.

GORDON'S VIPER. 24 dwts. 17 grs.

Branches drooping; fruit early, large, somewhat turbinate, greenish yellow, smooth.

HAMLET'S KILTON.

Branches somewhat drooping; fruit early, large, roundish oblong, bright greenish yellow, slightly hairy.

HARDCASTLE'S GUNNER. 27 dwts. 1 gr.

Branches somewhat erect; fruit rather late, large, obovate, with large veins, hairy or bristly.

HILL'S GOLDEN GOURD.

Branches somewhat drooping; fruit very early, large, oblong, greenish yellow, slightly hairy; very excellent.

PROPHET'S ROCKWOOD. 23 dwts. 4 grs.

Branches erect; fruit very early, large, roundish oblong, dark yellow, slightly hairy.

Other varieties recommended in the Pom. Mag.

RED.—*Boardman's British Crown*, large. — *Red Warrington*, large, late. — *Red Champagne*, small. — *Early Black*, small.

WHITE.—*White Crystal*, small. — *White Champagne*, small.

GREEN.—*Pitmaston Green Gage*, small.

YELLOW.—*Haywood's Invincible*, large. — *Yellow Champagne*. — *Rumbullion*, small.

I add on good authority, the "*Wonderful*," the largest gooseberry known.

CULTIVATION, SOIL, &c.

Gooseberries require a very rich soil; and in an airy situation or shade they are but little liable to mildew. They are raised from cuttings planted very early in April, in a moist soil; every eye should be cut out except the two uppermost above the surface. In autumn cut off the lower shoot very close; and shorten down the one left to six or nine inches. The bushes must be so managed as to be

furnished with limbs diverging in every direction, continually increasing in number as they advance from the centre. With this object in view, the young leading shoots of the last year are annually cut back to six or nine inches, and a proportion of the others are cut quite close. Thus the bushes will continue extending, every part being duly filled with bearing wood; sufficient space being left to admit the sun and a free circulation of air. The largest prize gooseberries are said to be raised on vigorous young bushes, which have not more than five or six branches, and but one, two, or at most three berries on a branch.

R A S P B E R R Y . — (*Rubus ideaus.*)

THE Raspberry is a shrub of low growth; its leaves are pinnate and composed of five leaflets; its flowers in panicles. Its root is perennial; its top generally biennial; it produces its fruit on the wood of the former year.

USES. — The Raspberry is an admired dessert fruit, but sugar improves its flavor. It is fragrant, subacid, cooling, and grateful to the taste, and, like the strawberry, it does not produce acidity on the stomach. The juice fermented with sugar, produces wine, very fragrant and of the most delicious flavor. It is also used for jams, pies, tarts, sauces, preserves, &c. And according to Loudon, it is much used for distilling, to make a cordial spirituous liquor, to which it gives name; and raspberry syrup is next to the strawberry in dissolving the tartar of the teeth. The wine mixed with water, according to Dr Short, "is a good reviving draught in ardent fevers." He further recommends it in scorbutic disorders.—*Phillips.*

For a choice selection, the following are particularly recommended by the different authors, whose names I have annexed, as the very best.

1. RED ANTWERP. All authors.
Burley Antwerp.

An excellent and productive fruit, large, and highly esteemed near Boston. The branches must be bent down in autumn, and protected with soil during winter.

2. WHITE ANTWERP. All authors.

Yellow Antwerp.

The fruit is large and fine ; highly esteemed near Boston, and very productive ; like the red it requires protection in winter.

3. BARNET, For. Loudon. Pom. Mag. Lindley.

Cornwall's Red Prolific Seedling, Large Red.

Produces large fruit and abundant crops, a profitable variety.

4. RED CANE, For. Loudon.

A good sort for the main crop.

5. DOUBLE BEARING, Neill. Loudon. Pom. Mag. Lindley.

Perpetual Bearing, Red Double Bearing, Siberian.

Produces a crop in July, and another in September and October.

6. CORNISH, Lindley.

7. BROMLEY HILL, Pom. Mag.

8. WILLIAMS' DOUBLE BEARING.

Pimaston's Double Bearing, Loudon.

9. WILLIAMS' PRESERVING, Lindley.

10. WOODWARD'S RED GLOBE, Lindley. Forsyth.

11. RED ALPINE MONTHLY.

Framboisier des Alpes de Tous les Mois a fruites Rouge, recommended in the Bon Jard.

There are two American varieties, quite distinct from the above, which may deserve to be enumerated ; these are, 12. Black American Raspberry ; 13. White American Raspberry.

Other varieties are named by Lindley, but not particularly recommended, as the *Antwerp Double Bearing Yellow* ; *Antwerp Late Bearing*, or *Knevet's Antwerp* ; *Brentford Cane* ; *Rough Cane* ; *Lord Exmouth* ; *Oak Hill* ; *Old White* ; *Prolific Early* ; *Red Malta* ; *Spring Grove* ; *Superb* ; *Taylor's Paragon*, or *Scarlet Paragon* ; *Wilmot's Early Red*.

CULTIVATION AND SOIL.

A moist, rich soil, is recommended for the raspberry ; and Mr Neill asserts that they do well even when moder-

ately shaded. In forming plantations, Lindley has directed that the rows should run from east to west, and the tallest sorts be planted in the north rows, and in the rear, at a large distance asunder; and those of small growth in the south rows, and at less distance asunder in the row. Thus all the varieties receive the full benefit of the sun. He directs as follows:

1st or north row, *Cornish*, set 4 feet asunder in the row.

2d row, *Woodward's Red Globe*, do.

3d row, *Red Antwerp*, set 3½ feet asunder in the row.

4th row, *White Antwerp*, do. do.

5th row, *Cane Raspberries*, set 3 feet asunder.

6th row, *Double Bearing*, or No 8, do. do.

Large plantations of any kind, are to be set out on the same principle.

He also recommends that three young plants should be placed in each hill, in a triangular form, six inches apart. These should be cut at the time, within a few inches of the ground. In autumn cut off all wood that has borne fruit; also all weakly shoots, and shorten the strong shoots to four fifths. Stakes or rails are not absolutely necessary. The tops of each stool may be tied together in summer at their tips, or Neill recommends to tie one half of two hills together at the tips, thus they form arches or festoons. With regard to the double bearing varieties it is recommended to cut down every alternate stool to within a few inches of the ground, in the annual pruning. Thus a succession of large late crops is always maintained.

Neill informs us that the Raspberry plantation is in its prime the third year, but must be annihilated after it has stood six years; and new ones must in the meantime be formed.

PERSIMMON. — (*Diospyrus virginiana*.)

AMERICAN DATE OR PRUNE.

THE Persimmon flourishes as far north as the river Connecticut, in the latitude of 42°, but is dwarfish. In a suitable soil and climate, it rises to the height of sixty feet, or forty diameters of its base. The leaves are oblong,

entire, of a fine dark green above, and glaucous below, and from four to six inches long. The fertile and barren blossoms are produced on different trees. The fruit, which is abundant, is round, of the size of a small plum, of a reddish color, and fleshy; they contain six or eight small stones; their taste is very astringent, but when ameliorated by frost, they are sweet and agreeable. The fruit, when bruised and fermented, produces brandy, which becomes good by age. This tree is raised from the seeds, which should be planted in autumn; and fine varieties may be propagated by inoculating or grafting.

STRAWBERRY.—(*Fragaria*.)

THE strawberry is a low creeping perennial plant; a native of the old continent; also of America, where it is found growing in a wild state. Botanists consider them a genus comprehending three species.

USES.—The strawberry is a fragrant, delicious, and esteemed dessert fruit, whether eaten alone, or with cream and sugar. It is deemed very wholesome, as it never causes acidity on the stomach. Boërhavé, according to Phillips, considered its use as one of the principal remedies in putrid fever; and Hoffman asserts that he has known consumptive people cured by the use of strawberries. It is also asserted that by eating plentifully of strawberries, rheumatic complaints are averted or cured. They also dissolve tartarous incrustations on the teeth. And lastly, Phillips asserts that the Pine strawberries make an agreeable dessert wine, as rich as mountain, but possessing greater fragrance and acidity.

VARIETIES.

Mr Barnet [see vol. vi. of the Lond. Hort. Trans:] has divided strawberries into seven classes. Mr Lindley has adopted the same course. And in describing the size of the fruit, I shall have reference to the general size of the particular class. I have adopted the same system.

CLASS I.—ALPINE AND WOOD STRAWBERRIES.

The Alpine and Wood strawberries agree in their general habits and character. The fruit, however, differs. The Alpines have conical fruit, and are fruitful in autumn. The Wood strawberries are more globose; they only produce fruit in summer.—*Barnet, see vol. vi. of Hort. Trans.*

RED ALPINE, *Frasier des Alps, with runners.*

The fruit is small and conical, ripening in summer and autumn.

RED BUSH ALPINE.

Possesses similar qualities to the White Bush Alpine, but differs in color.

WHITE ALPINE, *Frasier des Alps a fruit Blanc, with runners.*

The fruit is small and conical, ripening successively in summer and autumn.

WHITE BUSH ALPINE.

This has the same qualities, but is thought to be more productive, as it does not exhaust itself by runners.

RED WOOD, *Frasier Commun.*

An old variety extensively cultivated near Boston for the markets. It ripens in summer. The fruit is scarlet and round, very productive and highly esteemed.

WHITE WOOD, *Frasier Commun a fruit Blanc.*

This variety ripens in summer, the fruit is white and round; an old, good flavored variety, much cultivated and esteemed near Boston.

CLASS II.—BLACK STRAWBERRIES.

The fruit of this class is middle sized, conical, with a neck, of a very dark color at maturity, the seeds slightly imbedded; the flavor very rich and highly perfumed; the leaves of this class are small, rugose, pale green.—*Barnet, see vol. vi. of Hort. Trans.*

DOWNTON, *Knight's Seedling, Pom. Mag. Lind. Barnet.*

The fruit is large, ovate, with a neck; the early fruit is sometimes of a cockscomb shape; of a dark purple scarlet; the flesh is scarlet, firm, of an aromatic flavor. Originated by Mr Knight.

SWEET CONE, Pom. Mag. Lindley.

Small, conical, with a neck, hairy, bright shining scarlet; flesh pale scarlet, hollow, very high flavored.

CLASS III. — CAROLINA OR PINE STRAWBERRIES.

The leaves of this class are nearly smooth, of firm texture, with obtuse serratures, of a dark green; the fruit large, varying from nearly white to almost purple; the seeds prominent on a smooth surface; the flavor sweet and often perfumed.—*Barnet, see vol. vi. of Hort. Trans.*

BLACK PRINCE, Wilmot's Black Imperial. Lindley. Barnet.

Middle sized, spherical, depressed, hairy, of a very dark violet color; with a highly polished surface; the flesh of a rich dull scarlet, with a very small core, high flavored.

ELTON SEEDLING, Pom. Mag. Lindley. Barnet.

The fruit is large, ovate, often cockscomb shaped, of a rich shining dark red; the seeds yellow, with ridged intervals; the flesh is firm, with a small core, deep red, juicy, with a sharp rich flavor.

KEEN'S SEEDLING, Pom. Mag. Lindley.

Keen's Black Pine, Keen's New Pine, Keen's New Seedling.

The fruit is very large, globular, or ovate, of a dark purplish scarlet, hairy. It sometimes assumes the cockscomb shape. The surface polished, seeds slightly imbedded; flesh firm, solid, scarlet, high flavored. Introduced to the vicinity of Boston, by Mr Pratt. Also to this country and to notice by Mr Haggerston, of the Charlestown vineyard. In this strawberry are combined great beauty, extraordinary size, excellent flavor, and productiveness. The fruit grows high, which is much in its favor. Raised by Mr Michael Keen, from the seed of Keen's Imperial, which is a good fruit but very inferior to this.

MULBERRY, Cherokee, King, Mahone.

A strawberry much cultivated near Boston, and highly recommended by Messrs Senior and Haggerston. From them I understand this fruit was sent to the late Gov. Gore, and to England, by the late Hon. Rufus King, from the back parts of New York. The fruit is of medium size, ovate, with a short neck, of a dark red; flesh tender, of a red color, and good flavor; very productive.

OLD PINE OF CAROLINA, Pom. Mag. Lindley. Barnet.

Old Pine, Barham Down, Black Carolina, Cockscomb Pine, Devonshire Scarlet Pine, Kew Pine, Large Carolina, Large Pine, Miss Gunning's, North's Seedling, Old Carolina, Large Scarlet Pine, Pine, Regent's Favorite, Scarlet Pine, Varnished, Windsor Pine.

Fruit large, ovate, conical, with a neck, sometimes cockscomb shaped in the early fruit, of a bright scarlet; the flesh pale scarlet, rich, juicy, with a very grateful flavor; a good bearer and very highly esteemed.

CLASS IV.—CHILI STRAWBERRIES.

The leaves of this class are very villous, hoary, with small leaflets of thick texture, with very obtuse serratures; the fruit is very large and pale, with prominent seeds; the flesh in the type, which is the true Chili, is insipid.—*Barnet in vol. vi. of Lond. Hort. Trans.*

WILMOT'S SUPERB, Barnet. Lindley.

The early fruit is very large, irregular, sometimes cockscomb shaped. Afterwards they are invariably round, very hairy, pale scarlet, and polished. The seeds are brown and projecting. Flesh very firm, pale scarlet near the outside, but whitish within, with a small hollow in the centre, and a core; flavor good, buttery, and rich, mixed with acid.

CLASS V.—GREEN STRAWBERRIES.

The French cultivate several varieties of this strawberry. The *Green Pine* is much known in England, but it seldom bears perfect fruit; it bears well only in some particular situations. Their character is dwarfish, much resembling the Wood Strawberry. The leaves are light green, and strongly plaited.—*Barnet, vol. vi. Lond. Hort. Trans.*

Lindley has described the GREEN STRAWBERRY. (*Frasier Vert.*) *Caucasian, Green Alpine, Green Wood, Pine Apple.* But ascribes their defection to the multitude of runners, and has no doubt but if these were restrained, they would prove productive.

CLASS VI.—HAUTBOIS STRAWBERRIES.

The leaves of this class are highly elevated, rough, and of a thin texture; the scapes or stems tall and strong; the fruit middle sized, pale greenish white, tinged with dull purple; the seeds slightly imbedded; the flavor musky.—*Barnet*, in *Hort. Trans.* vol. vi. *Supposed to be so named on account of their bearing their fruit high; Hautbois or High Wood.*

LARGE FLAT HAUTBOIS, *Barnet*. Pom. Mag. Lindley.

Bath Hautbois, Formosa Hautbois, Sowder's Hautbois, Salter's Hautbois, Weymouth Hautbois, White Hautbois.

The fruit is large, round, depressed, light red; the seeds are imbedded; the flesh is greenish, juicy, delicate, without a core.

PROLIFIC OR CONICAL HAUTBOIS, *Barnet*. Pom. Mag. Lind.

Double Bearing, Dwarf, Hermaphrodite, Hudson's Bay, Regent's, Sacombe, Sir Joseph Banks', Spring Grove.

The fruit is large, conical, of a dark purple color, flesh solid, greenish and high flavored. An abundant bearer, and by far the best of the Hautbois strawberries. The flowers are the largest of the class; and it usually produces two crops.

CLASS VII.—SCARLET STRAWBERRIES.

The *Fragaria Virginiana* of botanists, is the type of this class. The leaves are nearly smooth, thin, dark green, with sharp pointed serratures; the fruit mostly small, of a bright scarlet color; the seeds more or less deeply imbedded, with ridged intervals; the flavor acid, with a slight perfume.—*Barnet*, in *Hort. Trans.* vol. vi.

BLACK ROSEBERRY, Pom. Mag. *Barnet*. Lindley.

The fruit is of good size, obtusely conical, deep purplish red and shining; the seeds are slightly imbedded; flesh dark red near the outside, solid, buttery and juicy, and of excellent flavor.

DUKE OF KENT'S SCARLET, *Barnet*. Pom. Mag. Lindley.

Austrian Scarlet, of Lindley, Cluster Scarlet, Globe Scarlet, Nova Scotia Scarlet, Duke of York's Scarlet, Early Prolific Scarlet.

The fruit is nearly globular, of rather small size, of a

fine scarlet; seeds deeply imbedded, with sharply ridged intervals; the flesh is solid, pale scarlet; flavor sharp, pleasant and peculiar.

GROVE END SCARLET, Barnet. Pom. Mag.

Atkinson's Scarlet, Wilmot's Early Scarlet.

A first rate strawberry and an abundant bearer. The fruit is of considerable size, depressed, spherical, of a bright vermilion color; seeds slightly imbedded with flat intervals; flesh pale scarlet, firm, with a core; flavor agreeable and slightly acid.

METHVEN SCARLET, Hort. Trans. vol. vi. p. 172.

Methven Castle, Southampton Scarlet.

Fruit very large, cordate, compressed, or cockscomb formed at times, or conical; dark scarlet. Seeds pale yellow, not deep set. Flesh scarlet, very wooly, sometimes hollow; highly esteemed with us.

OLD SCARLET, Pom. Mag. Lindley. Barnet.

Escarlate de Virginie, of the French, Scarlet, Early Scarlet, Original Scarlet, Virginia Scarlet.

A middle sized globular fruit, of a light scarlet color, slightly hairy; seeds deeply imbedded, with ridged intervals; flesh pale scarlet, firm and high flavored; a good bearer, ripening early; chiefly valuable for preserving.

ROSEBERRY, Barnet. Pom. Mag. Lindley.

Aberdeen Seedling, Prolific Pine, Rose Strawberry, Scotch Scarlet.

An abundant bearer; the fruit is large, conical, pointed, dark red, hairy, with a very short neck. The early fruit is sometimes cockscomb shaped; seeds yellow, deeply imbedded with ridged intervals; flesh firm, pale scarlet, with a core; flavor not rich, but agreeable; and much admired by many.

The whole list of strawberries which I have just described, (with the exception of the *Black Prince*, the *Wilmot's Superb*, the *Mulberry*, and the *Wood*, the *Bush Alpine*, and *Methven Castle*) are but the *select list* which is particularly recommended in the Pom. Mag. for a small garden.

Mr Lindley has since particularly recommended the same list for a small garden, with the exception of the *Bromley Hill*, and the addition of the *Black Prince*, and *Wilmot's Superb*. I have added the *Mulberry* on good authority here; also I have added the two varieties of *Wood Strawberries*, and the two varieties of *Bush Alpine*.

Mr Lindley has described sixtytwo varieties. Mr Barnett has recommended for a *select list*, the same generally, as the Pomological Magazine, and Mr Lindley.

In 1822, the London Horticultural Society, by their circulars congregated from all quarters, a vast collection of strawberries at Chiswick. The whole were examined by Mr Barnett; there were two hundred distinct names or synonymes, and fiftyfour varieties; his account of them occupies eighty pages quarto. — *See Hort. Trans.* vol. vi. p. 145.

Let us enumerate the names of the strawberries which Mr Lindley has described, and which are not recommended either by him, or in the Pom. Mag. for a *small garden*. Some of them may yet perhaps prove fine in our climate, as is the case with the *Mulberry Strawberry*, and *Methven*, and all are evidently thought worthy in a large collection.

In this list I omit the numerous synonymes generally.

1. American Scarlet. 2. Autumn Scarlet. 3. Bath Scarlet. 4. Bishop's Seedling Scarlet. 5. Blood Pine. 6. Bostock or *Wellington*. 7. Bullock's Blood. 8. Carmine Scarlet. 9. Charlotte. 10. Chinese. 11. Clustered Scarlet. 12. Cockscomb Scarlet. 13. Common Hautbois. 14. Conical Hautbois. 15. Dutch. 16. Dwarf White Carolina. 17. Garnestone Seedling. 18. Gibbs' Seedling Black. 19. Glazed Pine. 20. Globe Hautbois. 21. Green. 22. Grimstone Scarlet. 23. Hudson's Bay Scarlet. 24. Keen's Imperial. 25. Knight's Large Scarlet. 26. Lewisham Scarlet. 27. Methven Scarlet, or *Methven Castle*. 28. Morrissania Scarlet. 29. Mulberry. 30. Nairn's Scarlet. 31. Narrow Leaved Scarlet. 32. Ob-long Scarlet. 33. Pitmaston Black. 34. Pitmaston Black Scarlet. 35. Red Wood. 36. Round White Caroline. 37. Scone Scarlet. 38. Sir Joseph Banks' Scarlet. 39. Surinam. 40. True Chili. 41. Variegated Pine. 42. Vernon's Scarlet. 43. White Wood. 44. Wilmot's Late Scarlet. 45. Yellow Chili.

Other varieties which were unknown, or are not described by those authors, and which may prove fine in our climate.

1. New Black Musk Hautbois.
2. French Musk Hautbois.
3. Southborough Seedling.
4. Large Lima.
5. Melon, &c. &c.

CULTIVATION.

Lindley directs that as early in summer as the young runners have taken root, they should be transplanted into nursery beds five or six inches asunder. By this management they will by autumn have become fine strong plants capable of producing fruit the following summer.

For the reception of these plants he directs the ground to be trenched twenty inches deep; and a quantity of half rotted manure incorporated to half this depth. For economy he has also recommended in the final transplanting to set the plants in beds of four rows each; the rows running in a longitudinal direction. The distance between the beds to vary from two to two and a half feet according to the sorts to be planted, as some varieties require much more space than others. As to the distances of the rows asunder and the distance of the plants in the rows, I will lay down on Lindley's authority the following rules.

3d CLASS. In rows 15 inches asunder; the plants fifteen inches' distance in the row. *Wilmot's Superb* the same.

2d and 4th CLASSES (except *Wilmot's* as above.) In rows fifteen inches asunder and twelve inches' distance in the rows.

6th and 7th CLASSES. In rows twelve inches asunder; and twelve inches' distance in the row.

1st and 5th CLASSES. In rows twelve inches asunder; and nine inches' distance in the rows.

During the first year the runners are to be carefully destroyed before they have taken root. Around such as show fruit, grass or straw is placed; (Keen recommends the same; for the plant derives its name from this circumstance.) This protects alike the soil from washing rains; from a scorching sun, and the consequent evaporation of its moisture; it protects the fruit from becoming soiled. But as soon as the fruit is gathered this covering is to be removed; and the soil kept clear of weeds by the hoe till autumn.

In autumn he directs the leaves to be cut off (only a portion I presume) and all the spaces including the alleys to be dug carefully over with a pronged fork, so as not to injure their roots. Both Keen and Mr Knight, however, direct manure to be applied before this last operation is com-

menced; and Mr Knight has particularly cautioned against digging so deep as to disturb the roots, as it weakens the force of the plants.

The second summer Lindley further states that the plants will bear their best crop and finest fruit; the beds and outside of the alleys should be covered with mown grass or with straw three or four inches thick; by this method he states he has found the fruit not only more abundant but of finer quality.

It has been recommended to raise the *Alpines* from the seed. But Mr Williams of Pitmaston (Hort. Trans.) condemns the practice.—Lindley joins him in this; for having procured a good sort it is recommended to increase and continue it; and have no mixture of inferior sorts with the idea that such mixtures will improve. Some have directed in regard to the *Alpines* and *Hautbois* that a certain proportion of male or sterile plants should be preserved. But the experience of Lindley and some others seems opposed to this practice. — These sterile plants, never producing fruit, outgrow all the rest; they overrun those which produce fruit and soon take possession of the whole soil; they are neither useful nor necessary, but on the contrary ruinous, as the whole bed soon becomes barren. But by excluding the sterile plants in the beginning — the whole will remain productive.

As to the *Alpines*, Lindley directs to set them out in August; and by spring the beds will be covered with runners; these are not to be disturbed or removed, as in the case of other sorts; for they will produce fruit during autumn.

Management of Alpine and other sorts of Strawberries, when large and late crops are desired. — The Alpine strawberries are chiefly valuable on account of their continuing fruitful after all other varieties are gone. In order to make the utmost of this valuable property which they possess, Mr John Williams of Pitmaston has directed (see Hort. Tran.) to form the beds in August; by spring the beds will be well stocked with plants. When they have come into full blossom in spring, cut off every flower without injuring the leaves. This operation is to be again repeated as soon as a second set of blossoms appear. The third set of blossoms are suffered to remain: — and the plants having by this system accumulated strength, heavy crops are pro-

duced after other strawberries are gone, and when alone the Alpine strawberries are highly valuable.

Another mode has been stated by which a large crop of the *common varieties* of strawberries are produced in autumn. When the first crop is gone, the plants are shorn of every leaf, and at suitable intervals profusely watered: by this mode it is stated they not only renew their leaves, but a crop of blossoms and fruit is produced.

With regard to the produce of strawberries, all agree that the crop of the second year is more valuable than any succeeding crop. I will briefly detail three different modes in relation to this subject.

1st. The mode adopted by Mr Keen.

2d. That adopted by T. A. Knight, Esq.

3d. A mode not unfrequently adopted near Boston.

Mr Keen forms his beds in the spring, — The Hautbois and Pines are placed in rows three feet asunder and eighteen inches in a row. [Other classes at a proportionate distance.] The objects in placing them at this great distance is that there may be room for the feet of the gatherers: also room for the vines to spread to the end of the 3d year; when the bed is taken up and the ground planted anew. The first year little fruit is *expected* — the second year a very great crop — the third year a very moderate crop. Mr Knight condemns this system in part; his mode is as follows: like Mr Keen he forms his beds in the spring: he places the Pine and Hautbois in rows, sixteen inches asunder and only eighteen in the row — [other classes at a proportionate distance]. This is from three to four times the number of plants on the same ground as Mr Keen. Mr Knight takes off no runners except for the purpose of forming new beds: and he thinks he must obtain near twice the produce in the second year, which all acknowledge to be the fruitful year, from the same ground as Mr Keen. For Mr Knight leaves no unoccupied ground for the feet of the gatherers: as he considers the amount thus destroyed very inconsiderable compared with the waste of land. Mr Knight destroys his beds in the autumn of the second year after the first great or main crop is taken off. He esteems this the most economical mode.

In the vicinity of Boston the following mode is often adopted. The vines are usually transplanted in August. The rows are formed from eighteen inches to two feet

asunder. The runners during the first year are destroyed. In the second year they are suffered to grow and fill the interval, and in the autumn of that year, the whole old rows are turned under with the spade and the rows are thus shifted to the middle of the space. The same process is repeated every second year.

LIME PLANT.—(*Podophyllum peltatum.*)

A hardy and singular production of nature. The stem, foliage, flower, and fruit are formed in the earth; and after the plant has come up, there is nothing more than an extension of parts. The stems, at the height of from eight to twelve inches, branch out in two arms, at the extremity of each large palmated leaf. In the fork proceeds the fruit stem. The fruit is about the size of a large lime, green while growing, and yellow when ripe; it has the flavor of a pine-apple, and as to eating, is little inferior to that fruit. The plant requires a moist soil, in a cool, shady situation. It may be propagated by seed, but best by dividing the roots, which are jointed and creeping. The root is medicinal. A native of America.—*New England Farmer*, vol. viii. No. 16.

MELON.

MUSK MELON. (*Cucumis melo.*)

A delicious, large, oblong or globular fruit, too generally known to need a particular description. It is a native of Asia, and besides its use at the dessert, it forms, while young, an excellent pickle.

VARIETIES.

1. BLACK ROCK. Lindley.

Very large, oblate, yellowish skin. Flesh thick, orange colored, and of an excellent flavor.

2. DAREE MELON. Hort. Trans.

Fruit large, ovate or oval, pale green. Flesh white, thick, crisp, melting, very sweet.

3. DUTCH ROCK. Lindley.

An oblate, medium sized fruit, with a thick, yellow, rough skin. Flesh orange colored, thick, melting, sweet and high flavored.

4. EARLY CANTALOUPE. Lindley.

Small, globular, ribbed; skin pale green, flesh orange colored, juicy, of good flavor.

5. EARLY POLIGNAC. Lindley.

A small, round fruit, with a pale yellow, rough skin; flesh yellow, thick, sweet, and highly flavored.

6. GREEN MELON. *Ostrich's Egg*. Hort. Trans.

A green, oval, handsome fruit; flesh very thick, green, melting, very sweet, and high flavored.

7. GREEN HOOSAINER. Hort. Trans.

A handsome egg-shaped fruit; flesh greenish white; tender, delicate, juicy, highly perfumed. A very excellent and productive variety.

8. ITALIAN GREEN FLESHED. Hort. Trans.

A small, round, pale green fruit; flesh pale green, soft, juicy, very sweet, and high flavored.

9. LARGE GERNEK. Hort. Trans.

A large, excellent, and productive round fruit, of a sea green color. Flesh clear green, very thick, firm, juicy, rich and high flavored.

10. MELON DE CARMES. Lindley.

A very large, oblong, bright orange colored fruit; flesh very thick, salmon colored, tender, not juicy, sweet and good flavored.

11. MELON OF KEISING. Hort. Trans.

A beautiful egg shaped fruit, bright lemon color. Flesh very thick, nearly white, very juicy, delicate, sweet, and high flavored, like a Beurré Pear.

12. MONTAGU CANTALOUPE. Hort. Trans.

Form round or oval, small, greenish white ; flesh thick, reddish, soft, sweet, juicy, and delicate.

13. ORANGE CANTALOUPE. Lindley.

A small, round, yellow fruit ; flesh deep orange red, juicy, sugary, and extremely high flavored.

14. ROMANA. Neill.

A middle sized, oval, pale yellow fruit, ribbed ; flesh yellow, firm, and well flavored.

15. SCARLET ROCK. Lindley.

An oblate, deeply ribbed, pale green fruit ; flesh reddish ; tender, juicy, sweet, and highly flavored.

16. SILVER ROCK. Lindley.

Middle sized, oblate ; skin green and yellow, blotched ; flesh pale red, sweet, and well flavored.

17. SMOOTH SCARLET-FLESHED. Lindley. Hort. Trans.

Form round or oval ; skin greenish yellow ; flesh scarlet, firm, and high flavored.

18. SWEET MELON OF ISPAHAN. Hort. Trans.

Fruit large, ovate ; skin smooth, of a sulphur color ; flesh white, very thick, crisp, sugary, and very rich.

19. DAMPSHA MELON. Hort. Trans.

Fruit oblong, yellowish green ; flesh green, melting and of excellent flavor.

20. GREEN VALENCIA. Hort. Trans.

Form oval, pointed, slightly ribbed, of a dark green color ; flesh pale straw color, firm, saccharine, juicy and pleasant. The latter crops of the two last named varieties keep till winter.

We may also enumerate the following fine varieties :

Green Citron (fine) green flesh ;

Murray's Pine Apple, do.

Persian, do.

Nutmeg, do.

Minorca, do.

Large Cantaloupe ;

Star ; very late ;

Pomegranate, or musk (*fine*) *odoratissimus* ;

Palermo, very rich and fine ; flesh green, and keeps late in the season.

CULTIVATION. — The musk melon is raised from seed

planted in April or May, in a highly manured, warm, loamy soil, in hills six or eight feet asunder. Those kinds intended for seed, should be raised remote from inferior varieties. The vines should be pruned of superfluous branches, and all superfluous fruits must be removed as soon as they appear.

WATERMELON. (*Cucurbitus citrullus*.)

A native of Asia — and cultivated in all the warm and temperate countries of Europe, Africa, and America. A very large, round or oblong fruit, too well known in our climate to need a particular description.

Uses. — The watermelon is a very refreshing and wholesome dessert fruit in the warm season; it mitigates thirst. From the watermelon an excellent sweetmeat called artificial citron may be prepared as follows. [See New Eng. Farmer, vol. xi. No. 8.]

AMERICAN CITRON.

Pare the dark green from the outside and scrape the soft from the inside of the melon; cut it in different forms and boil it in alum water until clear; throw it into spring water, where it may remain two or three hours, changing the water frequently.

“To one pound of fruit, take two of sugar, make a syrup of half the the quantity and boil in it all the citron until done, when it will be transparent. At the expiration of two or three days, take the jelly from it, add the remaining half of sugar; boil and pour it over the citron, which will be ready for use. Season it with ginger; sliced lemon is preferable.”

The inspissated juice of the watermelon of the sweetest kinds, affords a bright, light colored syrup. A conserve and marmalade is also prepared from the fruit. At Sarpa, on the River Volga, says Pallas, they brew beer from the juice.

VARIETIES. — 1. *Long Carolina*; 2. *Round Carolina*.

CULTIVATION. — The cultivation of the watermelon is in all respects the same as the musk melon. Innumerable

and nameless fine varieties continually appear. But the same precautions are necessary to preserve the seed in its purity, as are recommended for the musk melon. They require a highly manured, rich, warm soil.

BERBERRY. — (*Berberis*.)

THE berberry or barberry is a prickly shrub rising to the height of ten feet with numerous branches. The bark is ash colored outside and yellow within; the fruit is in clusters, of a red color and taste. It is said to be a native of Asia, but abounds in the Northern and Middle States of America. - Some species of grain are liable to become affected by rust, if raised in its vicinity, particularly rye.

USES.—The fruit is used for pickling, and for preserving; a decoction of the berries sweetened, is deemed a useful as well as pleasant drink in fevers. The inner bark is said to be used in France for dyeing cotton and silk of a bright yellow; also for staining wood by cabinet makers; and in Poland it is used for coloring leather.

VARIETIES.

RED BERBERRY.

Of this there are two varieties; one the common berberry with stones; the other without.

WHITE BERBERRY.

Fruit large, agreeable, but not productive.

BLACK SWEET. Loudon.

Requires a warm situation.

CHINESE BERBERRY.

This variety, in some respects resembles the red; but differs some in appearance, and is deemed the most ornamental.

HOLLY-LEAVED BERBERRY. *Berberis aquafolium*.

A new and curious variety from the Rocky Mountains; very different from all others. This appears to be a variety with thornless wood and with leaves larger than the other

species, with prickly points. The blossoms are produced in numerous yellow clusters, and are handsome.

SOIL AND CULTIVATION. — The berry prefers a dry soil, but will succeed in almost any soil or situation. It is raised from seeds, from layers, and suckers.

BLACKBERRY. — (*Bramble.* — *Rubus fruticosus.*)

BUSH BLACKBERRY. *Rubus Americanus.*

A shrub rising to the height of ten feet, somewhat ribbed or angled and armed with hooked spines. The fruit, which grows in clusters, is oblong, an inch in length, of a shining black, of an agreeable taste, sweet or subacid and astringent. This plant thrives in a rich, moist, sandy loam, and is often cultivated in gardens, where its fruit is much improved in size and its crops very abundant.

TRAILING BLACKBERRY. *Dewberry.* *Rubus procumbens.*

This is a plant with low trailing branches, its stems are weak and bend to the earth, and there take root. The fruit is large, nearly globular, of a black color and covered with bloom, of a sweet subacid lively taste; this plant succeeds in dry hilly land.

USES. — The blackberry is considered a pleasant and wholesome dessert fruit, if used with moderation; it is used in pies, tarts, &c. A jelly is made of the blackberry of considerable medicinal efficacy in nephritic disorders. It is singular that a fruit so productive as the tall blackberry should be so little cultivated. Both species may be propagated either from seed or from layers, and are wonderfully improved by cultivation.

WHITE FRUITED BRAMBLE. *Rubus alba.*

A variety with white fruit.

DOUBLE WHITE FLOWERING. *Rubus albo-pleno.*

A beautiful and ornamental variety.

C R A N B E R R I E S . — (*Oxycoccus macrocarpus*.)

A low trailing vine, an indigenous fruit, growing wild in bogs and meadows. The berry has a very acid taste, and is much used in pies, puddings, tarts, preserves, &c. The cranberry is a plant of easy culture; and with but little expense, not a doubt exists that meadows which are now barren wastes, or yield nothing but coarse herbage, might be converted into profitable cranberry fields. According to Loudon, Sir Joseph Banks, who obtained this plant from America, raised in 1831, on a square of eighteen feet each way, three and a half Winchester bushels, which is at the rate of four hundred and sixty bushels to the acre. A man with a cranberry rake will in a good cranberry meadow, gather from twenty to fifty bushels in a day; any meadow will answer; Capt. Henry Hall of Barnstable, has cultivated the cranberry twenty years. They grow well on sandy bogs after draining; if the bogs are covered with brush it is removed, but it is not necessary to remove the rushes, as the strong roots of the cranberry soon overpower them. It would be well if previous to planting, the land could be ploughed; but Capt. Hall usually spreads on beach sand and digs holes four feet asunder each way, the same distance as for corn; the holes are, however, deeper. Into these holes, sods of cranberry roots are planted, and in the space of three years the whole ground is covered. The planting is usually performed in autumn. Mr F. A. Hayden, of Lincoln, Mass. is stated to have gathered from his farm, in 1830, four hundred bushels of cranberries, which brought him in Boston market \$400. [New England Farmer, vol. ix. No. 18.] Any dry soil with a mixture of bog earth will, it is said, produce abundant crops.

C R A N B E R R Y V I B U R N U M . — (*V. oxycoccum*.)

THE cranberry tree or shrub, rises to a very moderate height, its fruit is a berry about the size of a cranberry, of

a bright red color, and very austere taste. They are valuable for pies, tarts, preserves, &c. The tree is propagated by layers, and suckers or seeds.

ELDER. — (*Sambucus nigra*.)

A low bushy tree, of an ornamental appearance; its bark is smooth and gray, becoming rough by age; leaves pinnate; the flowers in terminating cymes; the berries black and abundant, of a sweet but not agreeable flavor; the tree and its leaves are narcotic. Noxious insects avoid it.

USES. — Although the berries are deemed poisonous to poultry generally, yet they are employed in the manufacture of an excellent, powerful and enlivening wine, remarkably wholesome. But the wine of white elder berries is said to resemble grape wine. A syrup and cordial are also prepared from the berries; and in Germany a very pure and strong spirit is said to be distilled from the fruit. The inner green bark is said to be an ingredient in black dye. And Professor Martyn, according to Loudon, has stated that the tree is a whole magazine of physic to rustic practitioners, nor is it quite neglected by more regular ones. Fruit trees, plants, &c. whipped with the fresh branches, are effectually secured from the depredations of noxious insects. The wood of old trees is hard and fine grained, and takes a fine polish, and is used by turners as a substitute for box wood.

MEDLAR. — (*Mespilus Germanica*.)

A low spreading tree; the branches are woolly; the leaves are oval, lanceolate, serrate and woolly towards their points. The fruit is round or turbinate, the size that of a plum. The pulp is thick and contains five wrinkled stones. An ornamental shrub, when in bloom, and a native of the south of Europe.

USES. — The fruit is much esteemed by some ; but it is never eaten till ameliorated by frost and in a state of decay.

VARIETIES.

NOTTINGHAM MEDLAR. Loudon.

A fruit of a quick and pungent taste.

GERMAN MEDLAR, or *Dutch Medlar*.

A low, crooked, deformed tree, with very large leaves, entire, and downy beneath ; the flowers are very large ; the fruit very large, somewhat resembling an apple in shape. This variety is the largest of the medlars and is deemed the best.

SOIL AND CULTIVATION. — Raised by seeds, planted while fresh and in autumn ; also by layers — or by grafting and inoculating, either on the medlar or on the quince, the hawthorn or the pear. They require a loamy, rich soil, rather moist than dry, on a dry subsoil.

MOUNTAIN ASH. — (*Sorbus aucuparia*.)

THIS tree rises erect in a beautiful pyramidal form to the height of twentyfive or thirty feet ; the leaves are pinnate ; the flowers are white, in corymbs ; the fruit is round, of a fine coral red. The berries of this tree are eaten, according to Loudon, in some parts of Scotland and Wales. They are also used for preserving ; they are also stated to afford an agreeable fermented liquor ; and by distillation, a considerable quantity of strong spirit. According to Mr Neill, in France they are frequently grafted on the service tree, and the fruit is thus rendered of larger size, and more abundant. It is one of the most ornamental of all trees, when loaded with its large clusters of red berries in autumn.

SILVER LEAVED SHEPARDIA.

BUFFALO BERRY TREE.

A beautiful hardy tree, so called from its silvery leaf. This tree was discovered by Professor Nuttall, in Missouri, in 1810, and was introduced here by the Messrs Winship. The tree is of upright growth and thorny; the leaves are small, of a delicate silvery appearance. The fertile and barren flowers are produced on different trees; the fruit is of the size and appearance of a large currant, of a fine scarlet color, and beautiful appearance; they envelope the branches in profuse clusters. It is of a rich taste, and valuable, with preparation, for preserves, tarts, &c.

NUTS.

WALNUT. (*Juglans regia*.)

ENGLISH OR MADEIRA NUT.

The walnut is a native of Persia and China. It is a lofty spreading tree, with pinnated leaves, of a powerful odor. The fruit is roundish oblong, smooth, green, inclosing a nut of a yellow color and irregular form, which contains a four lobed kernel of an agreeable taste.

USES. — The walnut is an esteemed dessert fruit; it also forms an excellent pickle when gathered, while it is yet so tender as to be easily probed with a needle. In France, according to Phillips, an oil equal to the oil of almonds is drawn from them. This oil does not congeal by cold, is highly prized by the painters for mixing delicate colors and varnish; and is excellent in medicine. He further informs us that the young preserved nuts are an excellent sweetmeat; good to be eaten in the morning, in time of pestilential distempers, to prevent infection. — A most superior family medicine when eaten in the small quantity of a single nut. They are prepared as follows: green walnuts in the state fit for pickling are boiled till tender; then take them out, and to every pound of nuts add a pound of moist

sugar, a little water, lemon peel, mace, cloves, and simmer till the syrup is thick, and let them stand ten days; then clarify half as much more sugar, and boiled as before; and when cold cover them close for use.

The decoction of the leaves annoys or destroys noxious insects and worms.

The timber is very extensively used for gunstocks, being deemed lighter in proportion to its strength and elasticity than any other wood.

CULTIVATION, SOIL, &c. — The walnut is raised from the seed planted in autumn; the second year they are transplanted and deprived of a portion of their tap root. They require a rich soil of loam and sand rather than clay. The varieties may be inarched — or budded from the minute buds at the base of the young shoot, inserted in the summit of the two years old wood.

BLACK WALNUT. (*Juglans nigra*.)

A majestic tree, with a round spreading head, which sometimes rises to the height of seventy feet, with a diameter of from four to seven feet. The leaves are pinnate and consist of six or eight pair of leaflets. They are acuminate, serrate and downy. The fruit is large and surrounded with a thick, globular, smooth, green husk; the shell is rough, uneven in its surface, odoriferous, hard, thick, and black. It incloses a four lobed kernel which is large and sweet.

Uses. — From the nut an oil is expressed equal to olive oil for food and useful for the painter. From the husk a brown dye is procured of different shades. The sap wood is white, but the heart is violet, becoming nearly black. It is very strong, fine grained, compact and heavy, and admits a beautiful polish, and is employed for furniture, and the stocks of muskets, and for the naves of wheels. It is strong and durable; and it is said to be never attacked by the sea worm.

CULTIVATION, SOIL, &c. — The cultivation of this tree is the same as the walnut. It flourishes in any good soil; but prefers the deep, fertile, and alluvial soils on the margins of creeks and rivers.

BUTTERNUT. (*Juglans cathartica.*)

OIL NUT, WHITE WALNUT.

A large tree with a broad-spreading head. In suitable situations it rises fifty or sixty feet, with a diameter of from three to four feet at this distance from the ground.

When young, this tree and its leaf strikingly resemble the Black Walnut; but when older they are easily distinguished. The fruit is similar in most respects to that variety, but is oval oblong; and the nut which is inclosed is oblong, rounded at the base and pointed at its summit. The kernel is sweet and abounds in a valuable oil.

USES.—The fruit is eaten at the dessert: for pickling it is superior, and is equally prized as the walnut. Its fruit preserved in the same manner as directed for the walnut, is equally excellent, and of equal medicinal efficacy. Pills formed by evaporating a decoction of the inner bark to a viscid consistence, are said to form one of the very best cathartics known. The timber is of a reddish hue, not strong but light and durable. It is never attacked by the sea worms. It is not liable to split, and its uses are the same as the bass wood.

CULTIVATION.—The cultivation of the Butternut is the same as the walnut; it flourishes in any good soil, on cold, unproductive, and rocky soils, on the steep banks of rivers.

CHESNUT. (*Castanea.*)

The European Chesnut was so named, from *Castanea*, a city of that name in Thessalia, from whence the Romans first received them. The chesnut is a large tree, of a fine form, rising sometimes to the height of eighty feet. The leaves are of an elongated form, coarsely serrated, of a fine shining green. A large globular prickly burr incloses two or three nuts of a dark brown color.

USES.—The fruit is used either boiled, roasted, or in a raw state. Phillips informs us that in the south of France, in Italy, and Savoy, they are made into puddings, cakes, and bread. And "chesnuts stewed with cream make a much admired dish; they make excellent soup; and stewed

and served with salt fish they are much admired." We are also further informed that there is now at Fortsworth, in Gloucestershire, a great chesnut tree, fiftytwo feet round; which in 1150 was so remarkable that it was called *The great Chesnut of Fortsworth*. And Marsham states that this tree is 1100 years old. Lastly, the timber of this tree is almost incorruptible, and more durable than oak. Its durability is commensurate with the long life of the tree. Corsica, it is said, exports annually of this fruit to the amount of 100,000 crowns. The American Chesnut differs very little from that of Europe. The fruit is smaller but equally good. Its growth is very rapid. The bark for tanning is superior to oak.

CULTIVATION. — The Chesnut is raised from the seeds planted in autumn — the second year they are transplanted, and fine varieties are extended by grafting. A sandy or gravelly loam with a dry subsoil best suits them.

CHINQUAPIN. (*Castanea pumila*.)

The Dwarf Chesnut rises to the height of ten or twelve feet, but sometimes thirty or forty feet. The tree and its fruit are with but little variation, a miniature of the Chesnut just described. But the timber is finer grained, more compact, heavier, if not more durable. It flourishes in any dry soil. Its cultivation is the same as the walnut and chesnut. It is not found wild, north of Pennsylvania.

SHAGBARK HICKORY. (*Juglans squamosa*.)

The Shagbark or *Shellbark* is an elegant tree of a tall and stately form, rising to the height of 80 or 90 feet. Its height is very tall in proportion to its dimensions near the base; often from forty to fifty diameters.

The leaves are oval, acuminate, in five leaflets, of a beautiful shining green above, glaucous beneath. When it has arrived to middle size, the outer bark separates in long thin plates or scales, warped out at the ends, giving the tree a shaggy and bristling appearance. In this respect it differs not only from other trees, but from other hickories; also in the fruit, which is round or oval, its hull very thick, covering a nut whose shell is always thin, and four lobed kernel, sweet. The timber of the shagbark always splits clear; it

works smooth ; it is very compact, strong, and elastic, and is preferred to any other wood or hickory for axe handles, ox bows, and various domestic utensils where all these qualities are required.

CULTIVATION, SOIL, &c. — The cultivation of this tree is the same as the walnut. It flourishes in any good soil, even in low wet land.

PACANE NUT. (*Juglans olivaformis.*)

A beautiful tree, rising with a straight, well proportioned trunk, to the height of 60 or 70 feet. Each leaf consists of six or seven leaflets. The nut, which is encompassed with a thin hull, is an inch and a half long ; cylindrical, pointed at its extremities, and has four slightly projecting angular ribs. The shell is smooth and thin, the kernel four lobed, and sweet.

FILBERT. (*Corylus.*)

A large shrub, with wood of an ash color ; leaves alternate, roundish cordate. Its fruit is well known and highly esteemed. They are extensively cultivated in Europe. "In the neighborhood of Avelino, in Italy," says Swinburn, "the whole face of the neighboring valley is covered with them, and in good years they yield a profit of 60,000 ducats. And from a single wood near Recus, in Spain, sixty thousand bushels have been gathered in a single year and shipped from Barcelona, whence they are called Barcelona nuts." — *Phillips.*

Phillips further informs us, the produce of a single acre planted with filberts, has sometimes been sold for fifty pounds. And Loudon states that its returns are very profitable.

VARIETIES.

1. **FRIZZLED FILBERT.** Pom. Mag. One of the very best. The fruit is produced in threes or fives, sometimes more ; rather small, oblong, flattened, the shell moderately thick, filled with the kernel, which is of good flavor. Very productive.

COSFORD NUT. Pom. Mag. A large oblong nut ; shell

thin ; kernel white, sweet, and of excellent quality. Very productive.

RED FILBERT. Loudon. Pom. Mag. Very fine flavored, but not productive.

CODNUT. Loudon. A large nut, shell thick, kernel sweet.

PEARSON'S PROLIFIC. Pom. Mag. A great bearer.

SPANISH OF BACELONA. A large nut with a thin shell ; this is the sort we usually import.

KNIGHT'S LARGE. Pom. Mag. Very fine.

AMERICAN FILBERT OR HAZEL NUT. *C. Americana*. This native variety is small but sweet, and very productive, and by cultivation it may undoubtedly be wonderfully improved in size.

CULTIVATION. — By seeds is not the best mode of raising, except to produce new varieties ; by layers is best, as this preserves the kinds. A deep, dry, sandy loam, on a dry subsoil, is the best ; according to the English writers, a well manured soil. In a rich moist soil they grow too luxuriantly to produce fruit. They require pruning and trimming to be kept low ; the leading shoots are every year to be shortened two thirds or more.

SOUTHERN FRUITS. — CLASS I.

FRUITS WHICH MAY BE CULTIVATED IN THE SOUTHWESTERN
AND SOUTHERN STATES TO THE LAT. OF 25°.

Most of these however may flourish in the Middle States, and a small portion may succeed in the Northwestern and Eastern States to the latitude of 43°.

FIG. (*Ficus carica*.)

THE Fig tree is a native of Asia ; a deciduous tree in the temperate climates, but an evergreen within the tropics. In a warm climate it grows to a very large size. The branches smooth, of a dark ashen color ; the leaves are cordate, ovate, three or five lobed, thick ; the fruit grows on

the wood of the former year in the axils of the leaves ; its form is turbinate ; it contains a pulp of a sweet and delicious flavor. The fig forms an important article of culture in Barbary, Greece, Italy, Spain, and the south of France, for drying, and on the coasts of the Mediterranean and its Isles. In these countries it grows to a large size. It is also cultivated pretty extensively near Paris, for the supply of its markets. Here they are kept low, that they may be with the greater ease protected in winter. They are planted on the south sides of walls, buildings, and the southern declivities of hills. Phillips informs us that there is an orchard of a hundred standard fig trees near Worthing, in Sussex, England ; its extent is three quarters of an acre. The trees are of the size of large apple trees and ripen their fruit as well as in any part of Spain. They are annually productive, and very profitable, ripening in August, September and October.

USES. — The fig is a wholesome and delicious article of the dessert ; and in these countries where it is extensively cultivated, it is not only eaten in a green or dried state, but fried or stewed, and in various ways, with or without bread or meat, as food. Figs are prepared by dipping them in scalding ley, made of the ashes of the fig tree, and then dried in the sun. And according to Dambourney, [See Dom. Enc.] “in dyeing, a decoction of the green branches and leaves imparts a deep gold color of a brownish red shade ; but the leaves alone impart a very deep yellow color. And the substances thus dyed, retain a very agreeable fragrance for many months, even after being washed. “The wood of the fig tree is almost indestructible, and was formerly much employed in the East, for the preservation of embalmed bodies.” [Ib.]

VARIETIES.

ANGELIQUE. Lindley. Bon Jard.

MELITE, COURCOURELLE BLANCHE. Hort. Soc. Cat.

YELLOW ANGELIQUE. Bon Jard.

The fruit is small, its color yellow ; form pyramidal ; its pulp is white, but red at the centre, and of excellent flavor. This sort is cultivated in the neighborhood of Paris.

COMMON BLUE. Mr Neill.

Sometimes called the *Purple Fig*, is of an oblong shape, and the tree is a great bearer. August.

LARGE BLUE. Lindley.**LARGE PURPLE.**

Fruit large, oblong ; skin purple, or dark brown, covered with a thick blue bloom ; pulp deep red, of a very good flavor ; a very hardy sort, and a most excellent bearer.

BORDEAUX. Lindley.**POIRE FIGUE, VIOLETTE DE BORDEAUX,** of the French.

The fruit is long and pyramidal, rounded at the crown, its length three inches ; its color is naturally a deep violet ; its pulp is deep red or purple, succulent and sweet. This fig is stated to be cultivated throughout France, and although not of very high flavor, it is very productive, producing annually two crops.

FIGUE BLANCHE RONDE. N. Dub. Pl. iv.**ROUND WHITE.**

This fig is esteemed the most suitable for the climate of Paris ; it is the most multiplied, and is there preferred to all others for its productiveness, and the superior quality of its fruit. The fruit is turbinate, two inches in diameter ; color at maturity yellowish green ; the flesh is white, very sweet and delicious. The first crop begins to ripen at the end of June. The second crop begins to ripen the middle of September, and lasts till hard frosts commence.

BRUNSWICK. Mr Neill.**MADONNA.**

The form is long and pyramidal ; the color brown, with but little flavor. The Pomological Magazine and Lindley agree that it is sweet, extremely rich, and high flavored ; and that it is the largest and best purple fig they have, adapted to their climate. It is early.

BLACK GENOA. Mr Neill.

An oblong fruit, of a dark purple color, almost black, and covered with purple bloom ; the pulp is bright and high flavored. The tree is a good bearer. End of August.

PURPLE GENOA.

The fruit is large and long ; the skin dark purple at maturity ; the flesh extremely sweet and delicious.

WHITE GENOA. Mr Neill.

A large and almost globular fruit, of a yellowish color at maturity ; the pulp is of a light red color, and of good flavor. The tree is considered rather a shy bearer.

BLACK ISCHIA. Mr Neill.

Sometimes called *Blue Ischia*, is a very good sort ; the fruit is short, of medium size, a little flattened at the crown ; at maturity the skin is dark purple or almost black, and the inside of a deep red ; the pulp very high flavored. The tree is a good bearer. End of September.

BROWN ISCHIA. Mr Neill.

Sometimes called *Chesnut colored Ischia*. A very large globular fruit ; its pulp is purple, sweet, and of very good flavor ; it ripens early, and seldom fails of producing a good crop. Middle of August.

GREEN ISCHIA. For.

The fruit is oblong ; its summit nearly globular ; its skin is green, thin, and brown at maturity ; its flesh is purple and high flavored.

YELLOW ISCHIA. For.

The fruit is large, the color yellow, the flesh purple and well flavored.

BLACK ITALIAN. Mr Neill.

A small roundish fruit ; the skin purple ; its pulp of a dark red color, and high flavored. The tree bears well.

BROWN ITALIAN. Mr Neill.

A small roundish fruit ; the skin of a brown color at maturity ; the pulp is red and high flavored. The tree bears abundantly.

LONG BROWN NAPLES. For.

This fruit is long, compressed at its summit ; the color dark brown ; the flesh is of a reddish color, and of good flavor ; the seeds are large.

MALTA. Mr Neill.

A small brown fruit ; the pulp is sweet and well flavored. When permitted to hang on the tree till it shrivels, it forms a fine sweetmeat.

MARSEILLES. Lindley.

FIGUE BLANCHE, of the French.

The fruit is small ; its form turbinate ; its height two inches, its diameter nearly the same ; color at maturity yellowish white ; the pulp is white, dry, sweet and rich.

MURREY. Mr Neill.**BROWN RED NAPLES.**

A large globular shaped fruit, of pretty good flavor ; it is distinguished by the murrey colored skin. September.

NERII. Lindley.

The fruit is small, turbinate, pale greenish yellow ; pulp similar in color to that of the pomegranate. The richest of the yellow, white, or green species, with a slight, delicate, agreeable acid. The Nerii Fig is cultivated by Mr Knight at Downton Castle.

BROWN TURKEY. Lindley.**BROWN ITALIAN**, of Forsyth, according to Lindley's Guide.

Fruit small and round ; of a red or purple color ; pulp very delicious.

VIOLETTE. Lindley and Bon Jard.**FIGUE VIOLETTE.**

Fruit small, of a deep violet color ; form globular, slightly turbinate, and about two inches in diameter ; flesh white near the skin, the centre tinged with red, and excellent. This sort is cultivated in the vicinity of Paris for the market.

SMALL EARLY WHITE. Mr Neill.

Its form is globular ; the pulp sweet, but without much flavor. It ripens early. Indeed, it seldom fails of producing a crop.

CULTIVATION, SOIL, &c.

The fig tree is raised from seeds, from layers, and from cuttings. They require a friable, loamy, but not wet soil, and an airy, warm situation. They differ from most other trees in producing several crops annually. Even in the climate of Boston, I am persuaded that figs of good quality may be raised, if the trees are placed in warm situations, south of walls or buildings, on the declivities of hills, as at Argenteuil, near Paris. Mr Knight has obtained, in his hot-house, eight successive crops in a year, by bending the limbs in a position below the horizontal. And Mr Lowell, in his experiments, has succeeded in obtaining four crops.

The tree will produce tolerable crops in the second year, if rung or decorticated, and by this process the maturity of the fruit is accelerated and its size increased. Its maturity is also hastened by a practice which prevails in France, which consists in pricking the fruit with a straw or quill dipped in olive oil. In Italy, according to Loudon, a wound with a knife is sometimes made on the broad end of the fig, or a very small part of the skin is removed for the same purpose. Lastly, by the mode communicated by the Hon. John Lowell, in the *New England Farmer*, vol. x. p. 62, for 1831; it is as follows:

"The fig, like the fruit of the vine and peach, attains a certain size, and then remains stationary for several weeks, until it begins to color, when its volume, in three or four days, is greatly increased, often doubled and even trebled. My figs [in a hot house, 28th August,] were dark green, showing no tendency to ripen. I took about a third of a tea-spoonful of sweet oil, and dipping my finger in it, I rubbed it very slightly over every *alternate* fig, leaving the others untouched, as a test of the effects. At the end of three days, the color of most of those touched with oil began to change, and the size to increase, and now on the fifth day, they have nearly the color of mature figs, and are twice and three times as large as those not touched with oil, which still remain of a dark green color."

Mr Phillips recommends that for a cold climate like England, the tree should be table trained; that is, to keep the branches tied to stakes about two feet from the ground; thus forming a regular star from the trunk. In the winter they are easily lowered to the earth, and secured by hooks and protected.

Mr Loudon seems persuaded that by combining the system recommended by Mr Knight, with that recommended by the Rev. G. Swayne, the most desirable results would be produced; they are both calculated for cold climates.

Mr Knight highly disapproves of training the branches of fig trees perpendicularly. If the stems are many, he reduces them to one only. And from the tops and parts near it, lateral branches are trained horizontally and pendantly, and secured close to the wall. All troublesome luxuriance is thus restrained, and the wood becomes extremely fruitful.

Mr Swayne trains his trees horizontally. His "specific"

is designed to remedy the deficiency of bloom in the early spring on the whole of the last year's wood, excepting on a few joints at its extremities. The remedy which he has for a long time successfully practised, is, to simply rub off, as soon as they can be discovered, all the figs which are produced after midsummer on the same year's shoots. Those figs which thus exhaust the tree, and will never ripen without artificial heat, are thus removed, and new figs are formed in embryo, for the crop of the following year, on one, if not on both sides of every fig thus displaced. The tree should be examined once a week from the commencement of the operation, which should be begun early in August or September, to the end of the season, according to latitude and climate.

PROTECTION. — In the north of France, fig trees are protected in winter by being secured to the earth by hooks, and covered with soil. This is the mode adopted at Argenteuil, near Paris, where almost the whole population are employed exclusively in their cultivation. In England, Forsyth and others recommend to protect with straw, meadow hay, moss, &c. and over this branches of pine or other evergreen are secured. They flourish with little care and no protection in the Southern States.

OLIVE. *Olea Europæa.* Bon Jard. Lou. Phil. Rosier.

The Olive is a low, evergreen, branching tree, throwing out numerous suckers from its roots; it rises to the height of from 20 to 30 feet; the leaves are stiff, narrow, simple, very entire, and more or less lanceolate in different varieties, dull green above and whitish below. The flowers are in small axillary bunches, of a yellowish white. The berry is a drupe of a black, violet, or red, sometimes white; its hard, thick, fleshy pulp incloses a stone.

The olive requires a greater degree of heat than the vine, but not so great as the orange. It will not flourish within the tropics. M. Poiteau informs us that in Europe, 45° of northern latitude is the extreme boundary for the cultivation of the olive. He also informs us that during his abode in the equinoctial regions of America, in the latitude of 17° north, he saw the olive trees 30 feet in height; they grew, but they never produced fruit. The

olive has been cultivated from time immemorial in Egypt and Barbary, and in every part of Europe and Asia where the soil is favorable to its growth; it is naturalized to the South of France, Spain, and Italy. The trees are said to live to an incredible age.

Uses. — The olive has long been cultivated as the most useful of all trees, and to the farmer the surest source of wealth. And it has become a proverb, "If you want to leave an inheritance to your children, plant an olive." The tree begins to bear at two years of age, and soon repays all expense. In twenty years they begin to bear good crops, yielding fifteen or twenty pounds of oil annually. And an old hollow tree, near Gricomi, to the east of Rome, has produced 240 English quarts of oil in a year. Mr Jefferson esteems the olive as the most precious gift of heaven to man — more precious than even bread. He informs us that, "in passing the Alps at the Col de Tende, where there are mere masses of rocks, wherever there happens to be a little soil, there are a number of olive trees, and a family supported by them. Take away these trees, and the same ground in corn could not support a single family. A pound of oil is equivalent to many pounds of flesh by the quantity of vegetables it will prepare and render comfortable food. Without this tree the country of Provence, and territory of Genoa would not support one half, perhaps not one third of their present inhabitants."

* * * * * "Little is carried to America, because Europe has it not to spare; we therefore have not learned the use of it; but cover the Southern States with it, and every man will become a consumer of it, within whose reach it can be brought in point of price." In the deserts of Northern Africa and Asia, as we are informed, wherever the olive groves are found, you find inhabitants; but take away the olive trees and the country returns again to the desert.

The *Black Sweet Olive* and the *White Sweet Olive* are eaten without any preparation.

The other varieties are used at the dessert as a pickle. For pickling, the unripe fruit is steeped in water some days, and then in a ley of water and barilla, or kali and lime; and afterwards bottled or barrelled with salt and water. According to some they are scalded.

But the principal use of the olive is for the production of

the oil known in commerce as the olive oil. For this purpose they are gathered by hand when five sixths are ripe, in a fine dry day, and laid on scaffolds three or four inches thick; here they are to remain five, six, seven, or eight days, till the moisture contained in their pulp has evaporated, when they are ground between mill-stones, and put into bags of hemp or rushes, carried to the press, and the oil is extracted by its action, without however crushing the stone. This oil is used as an article of food and medicine. That which is afterwards obtained by crushing the stone, from the remaining pulp, and from the kernel by the application of hot water, is of inferior quality. This last is used by the apothecary for various unguents; it is used in the preparation of wool in the manufactures; in the preparation of soap, &c. But the very best oil is made from the fruit gathered from or beneath the trees at perfect maturity, and ground and pressed immediately.

VARIETIES.

In the Cours Complet of Rosier, and Bon Jardinier, we have the following account of some of the very best varieties known in cultivation.

1. OLIVE GALINGUE. OULIVIERE. SAURINE. *O. angulosa*. Gouan.

A hardy variety, its fruit is reddish; it is used in many places for preserving; its oil is of medium quality according to Gouan, but very good according to others.

2. OLIVE AGLANDEAU. CAIENNE. DEC. *O. subrotunda*. Fruit small, round, very bitter; oil excellent.

3. OLIVE AMELLON. AMELLINGUE, PLANT D'AIX. *O. amygdalina*. Gouan.

This is a variety the most generally cultivated; its fruit is large and in form somewhat resembles an almond; it is sometimes used for preserving, but its oil is very sweet. The tree is very productive.

4. OLIVE CORNEAU. *O. craniomorpha*. Gouan.

The branches incline towards the earth; it is very productive; the fruit is small, crooked, pointed, very black; stone sharp at its two extremities. The oil is fine.

5. OLIVE AMPOULLEAU, BARRALANQUE. *O. spherica*. Gouan. The fruit is more round than any other variety; the oil

is delicate and fine; much cultivated in Provence and Languedoc.

6. OLIVE PICHOLINE. SAURINE. *O. oblonga*. Gouan.

The fruit is reputed best for preserving. The oil is fine and sweet. According to Rosier, some have given the same name to another and different fruit.

7. OLIVE VERDALE. VERDAU. *O. viridula*. Gouan.

It preserves its green color a long time; it is subject to perish at the period of its maturity; it is highly esteemed at Pont-du-Saint-Esprit and Montpellier, &c.; but neglected elsewhere. Is this owing to soil or cultivation.

8. OLIVE MOUREAU, MOURETTE, MOURES-GALE, NEGLETTE. *O. præcox*. Gouan.

Fruit oval, very deep color; the stone is small; oil esteemed; there are several varieties of the Moureau. Much cultivated in Provence and Languedoc. The leaves are large, thick, pointed, and numerous.

9. OLIVE BOUTEILLEAU, BOUTINIANE, RAPUGETE. *O. racemosa*. Gouan.

This is less sensible to cold than other olives; it is variable in its produce; the oil is good.

10. OLIVE SATERNE, SALERNE. *O. atrorubens*. Gouan.

The tree is of medium size, and sensible to cold. It grows in flinty and calcareous rocky soils. The fruit is black or violet; the oil is of the finest quality.

11. OLIVE MAREBEE. FIGAU. *O. variegata*. Gouan.

Fruit variable in size and in form; it changes from green to red, marbled with red, violet and white.

12. OLIVE TURQUOISE. L'ADORANTE. *O. odorata*. Rosier.

Leaves large and numerous; fruit long, of an agreeable odor, excellent to preserve. The oil is very sweet. The tree is productive, it requires a good sun, but is less sensible to cold than most other species.

13. OLIVE D'ESPAGNE, L'ESPAGNOLE a variety of Eguieres. *O. hispanica*. Rosier.

The largest olive of France; esteemed for preserves; the oil bitter.

14. OLIVE ROYALE, TRIPARDE, TRIPARELLE. *O. Regia*, Rosier.

Fruit large, suitable to pickle. Oil of bad quality.

15. OLIVE POINTUE, PUNCHUDE, ROUETTE. *O. atrovirens*. Rosier.

Fruit long, pointed at its extremities; red at maturity, oil esteemed.

16. 17. Amongst all the varieties in cultivation we must not omit to mention the SWEET WHITE OLIVE and the SWEET BLACK OLIVE, which, when ripe, may, unlike the others, be eaten without preparation.

By the aid of the researches of the Hon. H. A. S. Dearborn I am enabled to give an account of two other varieties. They are two varieties of the most hardy description, and the most important of all for the United States. In the southern part of the Crimea which lies between the latitude of 44° and 46° two varieties of olives have been discovered which have existed there for centuries. They yield great crops and resist the frost. The trees of one of these varieties is of a pyramidal form and produces an oval fruit; the other has pendant branches and a large heart-shaped berry. These olives have been cultivated in the Royal Imperial Garden of Nikita, to preserve and multiply the species, with plants which had been received from Provence, and have endured the rigorous winters of 1825 and 1826, while those of Provence, in the same exposure, perished even to the root. Measures have been recently taken in France for the introduction into that country of "*these two precious varieties, which are capable of resisting ten or twelve degrees of cold below the zero of Reaumur's Thermometer*"—equal to five degrees above the zero of Fahrenheit. — [See Vol. VIII. page 285, N. E. Farmer.]

CULTIVATION AND SOIL.

The olive is raised from seeds: For this purpose the fruit is striped of its pulp, and steeped in an alkaline solution; they are then buried compactly in soil near the surface, and those which have not been opened by frost during winter, must be cracked in March and planted. The best foreign varieties may be inoculated on the *Olea Americana* or Devil wood, a species of wild olive which grows in the Carolinas and Georgia. Also by cuttings, layers, suckers from the roots and by inoculation. But it is propa-

gated in Italy, from the *uovoli*, which are small knots, swellings or tumours in the wood, occasioned by the sap not flowing freely to the roots, but swelling through the bark of the stock, thus forming excrescences containing embryo buds. These are easily detached by introducing a sharp penknife close to the trunk of the tree which sustains not the least injury by this operation. — *Remarks of Signor Manetti of Monza, near Milan, Lombardy. Loudon's Mag.* Vol. vii. p. 663.

The olive flourishes best in a rich, moist, deep soil; but the fruit is of much better quality in a dry flinty soil intermixed with calcareous rocks: it also suffers less from the frost in such situations.

The olive was extensively cultivated in France; but the winters of 1709, 1766, and 1787 were dreadfully destructive; the dreadful winter of 1789 destroyed all the olives between Arles and Aix, where, in 1787, oil was produced to the amount of 300,000 francs. During the intensely cold winter of 1820 nearly every tree in Provence was killed. Under these discouragements its cultivation is in that country principally confined to a portion of the territories of Provence and of Languedoc, — to the department of the eastern Pyrennees and the Maritime Alps: not one fourth part of the oil consumed in France is now produced in the country, and it is stated that more than 50,000,000 francs are annually paid for supplies imported from Spain, Italy and the Levant.

M. Andre Michaux is persuaded the olive will one day be extensively cultivated in the southern States of America.

CAROB. (*Ceratonia caroubier.*)

A tree cultivated extensively in the south of Europe. The pods of this tree contain a sweet, eatable fœcula. A medium sized tree which flourishes in the central part of France and Genoa. The flowers are in clusters, of a deep purple. Fruit a foot long, containing a reddish pulp of an agreeable sweet taste, when dry. They are both food for man and horses. It is raised from seeds.

CUSTARD APPLE. (*Annona.* — *Corossal.*)

Of this fruit there are several varieties. In congenial climates it is said to be highly esteemed as an article of the dessert; particularly the *cherimoyer* (*A. cherimoyla*) of

Peru, which produces its fruit in the south of Spain, is described as a superior fruit. This variety is also cultivated in Brazil.

The *Alligator Apple* (*A. palustris*), — the *Sweet sop* (*A. squamosa*), and *Sour sop* (*A. muricata*) are esteemed West India fruits. The fruit resembles a middle sized apple, filled with a soft sweet pulp. The tree is deciduous, it is propagated by seeds, and by grafting either in the roots or above.

There is a variety a native of Kentucky, (*A. glabra*.) [*Bon Jard. Loudon. Hort. Soc. Cat.*]

EUPHORIA. (*Dimocarpus, Logan.*) Loudon. Hort. Soc. Cat.

LONG-YEN.

The tree has compound leaves like the ash. It grows in China; the fruit is a berry of a light brown color; it is surrounded with a thin leathery coat. The pulp is a thin, colorless substance, and contains in its centre a brown seed. The flavor of the pulp is slightly sweet, subacid, and particularly pleasant to the taste. The fruit is sometimes imported in a dried state from China, and has a rich, sweet taste.

It is raised from seeds and layers. The Li-tchi and Rambutan both possess superior qualities to the Long-yen.

GRANADILLA. (*Passiflora.*) Loudon. Bon Jard.

PASSION FLOWER.

Of this fruit there are a variety of species.

1. P. QUADRANGULARIS.

This plant flourishes near Paris, with a little protection in winter. The leaves are oval, five or six inches long and entire: the stem four cornered. The flowers are odoriferous, red within, and white outside. The fruit is described by Mr Sabine as very large, six inches long and fifteen inches in circumference. Greenish yellow at maturity, soft and leathery, with a smooth skin. The rind is very thick, the pulp soft and succulent, of a purple color, mixed with seeds in a sort of sack. Wine and sugar is commonly added. The flavor is sweet, and slightly acid, and it is very grateful to the taste and cooling in a hot climate. A native of Jamaica.

2. APPLE-FRUITED OR SWEET CALABASH. *P. malformis*.

Fruit round, smooth, two inches in diameter, of a dingy yellow color. The skin is thick, the pulp pale yellow, and very agreeable. A native of the West Indies.

3. PURPLE-FRUITED GRANADILLA. (*P. incarnata*.)

The color of the fruit is lived purple, the shape elliptic. It is two inches long and an inch and a half in diameter. The pulp is orange color, the seeds numerous; the taste acid, with the flavor somewhat like an orange. A native of Brazil.

4. FLESH-COLORED GRANADILLA. *May Apple*. (*P. incarnata*.)

A native of Virginia; the flowers are sweet scented, variegated with purple. The fruit is about the size of an apple, orange colored, with a sweetish yellow pulp.

CULTIVATION. — All the sorts may be propagated from seeds, from layers and cuttings.

GUAVA. (*Pisidium*.) Loudon. Bon Jard.**1. WHITE GUAVA. (*P. pyrifera*.)**

A West India tree, naturalized in the interior of France where it produces perfect fruit. A tree nine to twelve feet high, with numerous branches. The fruit is the size of a hen's egg, roundish or oblong, smooth, yellow. The rind is thin: pulp fine, full of hard seeds, flesh-colored, sweet, aromatic, and pleasant. It is eaten with avidity, both by West Indians and Europeans, raw in the dessert and preserved in sugar.

2. RED GUAVA. (*P. pomiferum*.)

A beautiful fruit, formed like a pomegranate; but is not so agreeable as the white.

3. CATTLEY'S GUAVA. (*P. cattleianum*.)

A new species from China. This fruit is larger than the others I have described, nearly spherical, of fine, deep claret color. The skin has the consistence of a ripe fig but is thinner; the interior is a soft, fleshy pulp, purplish red next the skin, and changing to white at the centre. It is juicy, and much in consistence like the strawberry, to which it bears some resemblance.

The Guava is raised from the seeds. This last and the cherry-fruited are stated to be the best. The plants of the yellow and red have produced abundant crops in England.

JUJUBE. (*Zizypus sativus*.) Loudon. Bon Jard.

NOTE.

A branching, thorny shrub from Syria, of the earliest culture in Italy, Barbary and China, and abundant bearers. It is cultivated in Provence, from whence they are sent to Paris. They are served up as a sweetmeat in Italy. The leaves are oblong, obtuse, shining; the flowers very small and yellow. The fruit is yellow, the size and shape of an olive. According to Loudon the kaki are orange or apple shaped.

LOQUAT. (*Mespilus Japonica*.) Loudon. Hort. Soc. Cat.
ERIOBOTRIA.

A plant nearly hardy, from Japan, cultivated in the south of France and at Malta. A lofty tree with thick knobby branches — the leaves are narrow, a span long; the fruit is about the size of a gooseberry, and in taste resembling an apple. It is raised from seed, from cuttings, and layers, but the best way is to graft it on the common *Mespilus*. Sir Joseph Banks considers the fruit equally as good as that of the mango.

LUCUMA.

A new genus of fruit. It grows in Chili; in taste and size it is somewhat similar to a peach. — *Ed. Enc. Art. Chili*.

MADI.

This plant grows in Chili; it is said to be a new genus, its seeds afford an oil which has been preferred to any of the French olive oils. — *Ed. Enc. Art. Chili*.

OLEASTER. (*Eleagnus angustifolius*.) Hort. Soc. Cat.
Bon Jard.

A tree of medium size, with leaves of a white color and lanceolate; the flowers small, numerous, and of a yellowish color, and an agreeable odor. The fruit is held in some estimation in Persia, and the fruit, or *Persian date*, when dried, resembles an oblong plum, with a tough reddish skin, with a flavor not unlike that of the date, but more grateful. Raised from layers.

PINUS PINEA, or STONE PINE,

Is a tall evergreen, growing spontaneously in Italy, Spain,

and Portugal. The kernels which are contained in the cones are eaten in those countries at the dessert, being preferred to almonds. They are esteemed useful in colds, coughs, &c. The trees flourish in any soil, but prefer a sandy loam.

PISTACHIA. (*Pistacia vera.*) Bon Jard.

A native of Syria. A tree rising to the height of twenty feet. The flowers are in clusters, and the barren and fertile blossoms are produced on different trees, but the barren may be engrafted into the same tree producing fertile flowers. The fruit is of a crimson green color and contains a greenish kernel of an agreeable flavor. It is much used by the confectioners.

The Pistachia has been naturalized to the middle of France, and it flourishes in the Luxemburg, producing good fruit, but it is there treated as an espalier.

PRICKLY PEAR. (*Cactus. Cactier.*)

Of this singular fruit there are several varieties; we enumerate *C. oppunta*—The upright prickly pear, a native of Virginia. The stems are jointed and without leaves, they are broad, flat, thick, with bristling spines, and trail on the ground. The fruit is in form of a fig or pear, with clusters of spines on the skin; its pulp is of a reddish purple color, and of an agreeable subacid flavor. Loudon enumerates several varieties, as the great Indian fig or upright prickly pear (*C. funa*); oblong Indian fig (*C. ficus indica*), &c.

The Virginia Prickly Pear (*C. oppunta*) appears hardy, and will endure the hard winters, unprotected, near Boston. Accident produced this discovery. Mr Braddick, according to Loudon, has tried the plant in open ground, unprotected, during several hard winters. He cultivates them in a composition of half lime rubbish or carbonate of lime, and the other half equal parts of clay and bog earth. The plant is raised on a small hillock; stones and pebbles are laid to prevent the leaves or fruit touching the ground. Raised from seeds or cuttings.

POMEGRANATE, (*Punica.*) Loudon.

Is a low, deciduous tree, rising from fifteen to twenty feet high, armed with thorns; the leaves are long and nar-

row. A native of the south parts of Europe and China. It is used for hedges in Languedoc and Italy. There are several varieties enumerated.

1. *The Subacid fruited*; 2. *Large flowered, single Red and White*; 3. *The semidouble, and double Red and White*; 4. *The Yellow flowered*; 5. *The variegated flowered*; 6. *Proliferous*.

POMEGRANATE. (*Punica granatum*.) Loudon.

Sweet Pomegranate. N. Duh. Pl. 23.

Grenadier a fruit Doux. Ib.

The flowers are of the most brilliant red; it blossoms successively from June to September; one of the greatest ornaments of the gardens.

The fruit is large, compressed at its base and summit, its diameter three or four inches; its skin is thick, coriaceous, of a deep yellow color; spotted with red points, and colored with red next the sun. Its interior is divided into various unequal compartments, in which are contained a great number of angular seeds of the color and size of red currants; the pulp contains a juice, sweet, abundant, and agreeable.

CULTIVATION. — The Pomegranate is raised from seed, from layers, from cuttings, and suckers. It may be inoculated or grafted. It requires a strong rich soil.

TEA. (*Thea*.)

The tea tree is a native of China. It is chiefly cultivated between the 30th and 40th degree of latitude. It is a low tree, resembling in its appearance a myrtle; — its roots that of a pear; the flowers those of the wild rose. The fruit is of the size of a small plum, two or three growing together.

The quantity of tea annually imported into Europe and America from China, probably exceeds 100,000,000 lbs. Good tea is deemed wholesome, if taken in moderation with a due proportion of cream and sugar; but the fresh leaves of the shrub when made into tea, are highly narcotic, producing giddiness and stupefaction, before the noxious properties are dissipated by roasting. And it is not recommended to drink of the infusion till it has been gathered and prepared a year. There are, it is asserted, but two kinds of tea, the green and the black. The rest are either

combinations of these, or products of different sorts, or times of gathering and modes of management. The tea plant might be easily cultivated in the Southern States, and grows well in the Carolinas and Georgia. It is said to have been successfully cultivated by a society of nuns at Wurtzburg, in Franconia, in the lat. of 49° or 50° north.

The tea tree, in China, grows equally in the level and mountainous districts; but flourishes best in a light rocky soil. The seeds are sown in March, and transplanted into rows four feet apart and three feet in the row; but it is not generally allowed to grow more than six or seven feet high. The trees begin to yield crops at the end of three years, but at the end of six years the trees must be renewed, as the leaves begin to grow hard and harsh. The leaves which are gathered early in the spring are of a bright green color. Those of the second crop are of a livid green — and those which are gathered last, or in the latter end of spring, are of a dark green, and of the third quality. The leaves of the extremities of the branches are most tender. Those of the lower parts are the most coarse. After the leaves are gathered, they are exposed to the steam of boiling water. They are then made to shrivel or roll together by being placed on plates of copper or iron, or of baked earth, over the fire, and next dried by exposure to the sun. But the green teas and those of the first quality are not dried by exposure to the sun, as this causes them to turn black. And in the preparation of some of the fine sorts, especially that called Tchu-tcha, every leaf is rolled singly in the hand, with great care; after drying, it is packed in boxes lined with lead. — *Dom. Ency. Ed. Ency. Art. China.*

This last operation of rolling every leaf singly, by hand, of the finer kinds of tea, would never answer in a country like ours, where labor is comparatively dear. If the operation is performed at all, it must be by machinery invented and constructed for the special purpose.

TCHEE-TSE.

A fruit of China, which resembles a fig, about the size of an ordinary apple, and which when dried and flattened, are called Tchee-ping, and are then equal to the best figs of Europe. — *Ed. Enc. Art. China.*

TUNA.

A species of Indian fig, grows in Chili, and is equal to any European fig. — *Ed. Enc. Art. Chili.*

SOUTHERN FRUITS. — CLASS II.

FRUITS WHICH FLOURISH ONLY IN COUNTRIES SITUATED
EITHER WITHIN OR NOT VERY REMOTE FROM THE TROPICS.

All the following fruits will probably succeed in the south of Louisiana, and especially in Florida, from the latitude of 25° to 30°, and many of them in the south of Alabama and Mississippi.

ORANGE. (*Citrus.*)

Scientific writers have divided the Orange tribe into five leading species, which are all natives of Asia, viz. The common Orange, the Lemon, the Citron, the Lime, and the Shaddock. In many countries they rise to the height of fifty feet; but in more temperate latitudes the common character belonging to them, is that of low evergreen trees, with oval, lanceolate, or ovate, entire or serrated leaves. Those raised from seeds have often axillary spines; the flowers are in peduncles. The fruits are round or oblong, and of a yellow color. The petiole of the orange and shaddock is winged; but naked in the lime, lemon, and citron. These three last are considered of one species. The orange and shaddock are oblate or spherical, and of a red or orange color; the lime is of a pale color and spherical; the lemon oblong with a rough skin and a protuberance at the end. The citron is very rough, oblong, with a very thick skin.

All the species of citrus, according to the authority of Loudon, endure the open air at Nice, Genoa, and Naples. At Mola, in Italy, and at the water's edge in view of the bay of Gayetta, and on the supposed ruins of one of Cicero's villas, is a garden of 700 orange and lemon trees. It comprehends about two acres, and yields a rent of about 600 scudi, or about \$555 per annum. But at Florence and Milan, and often at Rome, they require protection. The orange has been long cultivated in Florida, particular-

ly at St Augustine—the orange groves are said to be extremely productive and profitable.

The orange has been much cultivated in Louisiana, and may perhaps succeed well in the extreme south of Mississippi and Alabama.

"*In the south of Devonshire*," according to Loudon and Phillips, "and particularly at Saltcombe, one of the warmest spots in England, may be seen in a few gardens, orange trees that have withstood the winter in the open air upwards of a hundred years, the fruit as large and as fine as any from Portugal. Trees raised from the seed and inoculated on the spot, are found to bear the cold better than trees that are imported."

VARIETIES.

The two principal varieties of the Orange are—1st, the SWEET ORANGE; 2d, the BITTER ORANGE, or *Bigarade* of the French.

CLASS I.—SWEET ORANGE.

1. COMMON ORANGE. *Citrus aurantium*.

An evergreen tree, of medium size, with prickly branches in its wild state. The fruit is round, from two to three inches in diameter, of a yellowish red or golden color. A native of India and China, but now cultivated in Spain, Portugal, and Italy, in Africa, and the warm latitudes of North and South America.

1. MANDARIN ORANGE. *Citrus nobilis*.

The Mandarin or Noble Orange is so called from its superiority to all others. A most delicious variety, but very lately introduced to Europe. The trees appear as hardy as other kinds. The skin is of a deep saffron color, or an orange scarlet. There are two varieties of the Mandarin Orange. The large variety is often five inches in diameter; but the Chinese greatly prefer the smaller variety, which is a distinct species from the common China orange, *Citrus aurantium*. It is distinguished not only from this, but from all others, by its curious form and superior excellence. A native of Cochin China, and cultivated at Canton.

3. BLOOD OR MALTESE ORANGE. Rev. Mr Bigelow's Travels.

This, according to Mr Bigelow, is the boast of the Isl-

and of Malta, and a most delicious fruit. "The pulp inclines to the color of red, but not so much in mass, as intermixed in streaks. It is not only more luscious, but less husky than the ordinary varieties of orange, and in size is far surpassing."

To this class also belong the Portugal Orange and many other varieties.

CLASS II. — BITTER ORANGE. *Bigarade of the French.*

4. SEVILLE ORANGE.

The leaves of this variety are larger and more beautiful than those of the China Orange. Its taste is agreeably bitter. The varieties of the Bigarades are numerous.

To the above classes belong also the *Willow leaved* or *Turkey Orange*; the *Dwarf nutmeg Orange*; the *Double flowering*, and the *Variegated leaved*, &c. &c.

USES. — The use of the orange as a dessert fruit is well known. The juice of the orange, from its pleasant subacid flavor, is serviceable in inflammatory or febrile diseases; by diminishing heat and allaying thirst. It is a powerful antiscorbutic. Orange wine (*See Dom. Ency.*) is thus made. A gallon of water and three pounds of sugar are boiled and skimmed for twenty minutes, and when nearly cool, the juice expressed from eight Seville (sour) oranges is added; together with the shavings of the outer rinds. The whole to be placed in a barrel and after frequent stirrings, for two days, to be bunged down for six months or more till fit for bottling. The outer rind also forms the basis of an excellent conserve, and when preserved in sugar, is deservedly prized at the dessert, being one of the best stomachics, and a grateful aromatic bitter. The flowers of the orange tree have a highly "odoriferous perfume"; they have a slightly pungent, bitter taste; and communicate their flavor by infusion to rectified spirits; or by distillation to spirit and water. An essential oil is also prepared from the flowers, of a perfume more delicate and agreeable in its fragrance than even the *Otto of Roses*. It is prepared in Italy and Portugal, and there called *Essentia Neroli*. — [Ib.]

CITRON. (*C. medica*.) Loudon.

A beautiful, evergreen, prickly, and upright tree, rising

to the height of eight or ten feet, with horizontal or reclining branches. The leaves are smooth, oblong, ovate, alternate, serrate, pale green. The fruit is six inches long, ovate, rough, with a protuberance at the summit. There are two rinds; the outer rind is thin, the inner thick, white and pulpy. The outer rind has innumerable glands filled with a fragrant oil. This fruit ripens successively at all seasons, the citron and lemon are not deemed so hardy as the orange, and will not endure so great a degree of cold.

USES.—The citron forms an excellent preserve or sweetmeat. The juice with sugar and water forms the refreshing beverage called lemonade. It is used in cookery and in medicine, and is powerfully antiscorbutic. There are many varieties.

LEMON. (*C. medica*, var. *limon*.) Loudon.

The lemon and citron differ but very little. The wood of the lemon tree is more knotty, the bark rougher. The fruit is rather longer, more irregular, less knobby at the extremities and the skin thinner than that of the citron. The uses are the same. Of the lemon there are many varieties.

LIME. (*Citrus acida*.) Loudon.

A crooked tree with many diffuse, prickly branches, which rises to the height of eight feet. The leaves ovate, lanceolate, nearly entire. The fruit nearly globular, an inch and a half in diameter, with a protuberance at its summit; the skin shining, yellowish green and very odorous; the juice very acid. A native of Asia.

USES.—The lime is said to be rather preferred to the lemon in the West Indies, as the acid is by many thought more agreeable than that of the lemon. Hedges are formed of the tree in the West Indies. The varieties of limes are very few.

SHADDOCK. (*C. decumana*.)

ORANGE PAMPLENOUSE of the French.

The tree rises above the medium size, the branches spreading and prickly. Leaves ovate, neither acute nor obtuse; the petioles cordate with very broad wings.

Fruit spheroidal, its surface regular, of a greenish yellow color ; the rind is white, thick, fungous, bitter ; the pulp is red or white, with a subacid, sweet juice. This fruit is deemed the least useful class. Yet its extraordinary size gives it a striking appearance. It is stated to grow sometimes to the diameter of from seven to eight inches, and to the weight of fourteen pounds. But it requires two years to arrive at maturity in the climate of Europe. The leaf is the most beautiful of all the orange tribe. The juice is excellent to allay thirst, and from the thickness of the skin, it will keep longer in sea voyages than any other species.

CULTIVATION. — The trees are propagated either by seed, cuttings or layers. If raised from seeds they must be inoculated, inarched, or grafted when of suitable size ; for the seedlings vary as much in quality, as the seedlings of the apple or pear. The best stocks are raised from the seed of the common citron or lemon, and next to these from the Seville orange. The cuttings are prepared by stripping the lower leaves, and cutting at the bottom close to an eye ; these are to be placed in a pot, touching the bottom, or a piece of potsherd, and put in a warm situation, carefully shaded and covered with a hand glass till rooted.

All the varieties require a strong soil, and a protected and situation in unfavorable climates.

PINE-APPLE. (*Bromelia ananas.*) Hort. Trans. Loudon, Phillips, Lindley, and other sources.

The Pine-apple is a native of Brazil and of Mexico, from whence it has been introduced to Asia, Africa, and Europe. According to Swinburn, it flourishes unprotected at Reggio, near Naples. In America, it grows as far north as the Bermudas. According to Loudon, it is by no means so delicate as many imagine ; as it will bear a higher degree of heat, and a degree of cold which would have destroyed the foliage of the vine and peach in a state of vegetation. The most northerly points where they are known to be cultivated in Europe unprotected in the open ground, is at Reggio, near Naples, lat. $40^{\circ} 50'$. In America, at the Bermudas, in the latitude of 32° . Not a doubt can, I think, exist, but this fruit may be cultivated in Florida, between the latitudes of 25° and 30° .

"The leaves of the pine-plant are long, narrow, channelled, and in general furnished with spines or prickles on their edges. The flowers are on a loose spike, on a scape, which is leafy at top; as the spike ripens, it takes the form of a fleshy, scaly strobile, or fruit composed of many berries, which have scarcely any cells or seeds."

The fruit, in form bears some resemblance to the cones of some species of pine; its flesh is pretty firm, of a delicious fragrance; and for richness of flavor it is thought unrivalled. Some have described its flavor like that of "strawberries with wine and sugar." Extraordinary specimens have weighed from nine to ten pounds.

USES.—The pine-apple is considered the best of the dessert fruits; it is also preserved in sugar, and is used in the preparations of marmalades and other confectionaries. And the juice of the pine-apple, fermented, affords a delicious and wholesome vinous liquor.

VARIETIES.

1. **ANTIGUA QUEEN.** Lindley.

Fruit large, oval; pips large and prominent; flesh deep yellow, rich and highly flavored.

2. **BLACK ANTIGUA.** *Brown Antigua.* Neill. Lindley.

Leaves of a brownish tinge, with strong prickles. Fruit shaped like the frustum of a pyramid, but somewhat oval, of a large size; flesh pale yellow, and high flavored.

3. **BLACK JAMAICA.** Neill. Lindley.

The fruit is large, pyramidal, brownish yellow. Flesh deep yellow and high flavored.

4. **ENVILLE.** *Coxcomb.* Lindley.

The fruit is pyramidal or oval-oblong, of medium size, deep orange; flesh pale yellow, and well flavored.

5. **MONTSERRAT.** *Indian Black Pine.* Ripley. Neill. Lind.

The leaves are broad, long, recurved. Fruit roundish ovate, color pale; pips angular; flesh pale yellow, very sweet and high flavored.

6. **NEW BLACK JAMAICA.** Lindley.

The leaves are long, the fruit is large, pyramidal, dark brown; flesh pale yellow, rich, and very high flavored.

7. **WHITE PROVIDENCE.** *New Providence.* Loud. Lindl.

The leaves are very large and long; the fruit is the

largest of all pines, oval-oblong. Flesh very pale, sweet, and juicy. Weight from six to fourteen pounds.

8. QUEEN. *Old Queen, Narrow leaved Queen.* Lind. Neill.

Esteemed the handsomest kind. Fruit of medium size; oval form, of a gold color; flesh yellow, juicy and sweet, with a very pleasant acid.

9. RUSSIAN GLOBE. Lindley.

Fruit large, oval, dark orange; the flesh yellow, rich, and high flavored. A very excellent fruit.

CULTIVATION AND SOIL. — The pine apple is propagated by seeds, only for obtaining new varieties. But generally from suckers, or else from the *crowns* or excrescences growing on the fruit. The most suitable soil appears to be a mixture of good loam or with a suitable proportion of sand and vegetable mould or manure. The pine apple requires much heat and moisture.

PLANTAIN. (*Musa paradisiaca.*) Phillips. Loudon.

Some assign this plant to Guinea, some to the East Indies, whence it was carried to the Canary Islands and the West Indies, and Egypt. It is an herbaceous perennial plant, as it dies, or is cut down annually. It rises with a soft, herbaceous, conical stalk, fifteen or twenty feet high, with leaves issuing from the top, six feet long and two feet broad. The fruit is produced on the summit in spikes, which sometimes weigh forty pounds. It is nine or ten inches long, and formed like a cucumber, but pointed at the ends; of a pale yellow color, and soft, sweet, luscious flavor. The fruit makes excellent tarts, and excellent sweetmeats, and is the most wholesome of all confectionary. It forms a principal part of the food of the negroes, who either broil or roast it; they boil it with salt beef, pork, and salt fish, and prefer it to bread, as do the Europeans. Dr Wright says, the island of Jamaica would scarcely be habitable without this fruit, as no species of provisions could supply its place. Dampier calls it the king of fruits. A plantation affords a succession of fruit for a whole year. It thrives only in rich, flat ground, and is propagated by suckers from the roots.

BANANA TREE. (*Musa sapientum.*) Loudon. Phillips.

It differs little from the plantain, having the stalks marked with dark purple stripes and spots, and the fruit is

shorter and rounder. The fruit is more mellow, and is either eaten raw, or roasted, in fritters, preserves, marmalade; and the fermented juice affords an excellent wine. This fruit according to Swinburn, grows in the open air at Reggio. From the fibres of the tree of the Banana, cloth and cordage is made of uncommon strength.

M. Humboldt has calculated that the same ground which will produce four thousand pounds of bananas, will only produce thirtythree pounds of wheat, and ninety-nine pounds of potatoes.

AKEE TREE. (*Blighia sapida.*) Loudon.

The fruit is esteemed in the West Indies as very wholesome and nourishing; a native of Guinea, and grows from twenty to twentyfive feet high, with numerous branches; leaves like the ash, alternate and pinnate. The fruit is reddish or yellow, the size of a goose egg, with a pulp of a grateful subacid flavor. It is propagated in a rich soil, from seeds, cuttings and layers.

ALLIGATOR PEAR, OR ADVOCADO PEAR. (*Laurus persea.*) Loudon.

It grows in the West Indies to the height of thirty feet, with a large trunk. The leaves are like the laurel, of a deep green. Fruit the size of a large pear, and held in great esteem where it grows. The pulp is pretty firm, and has a delicate, rich flavor — so rich and mild, that most people make use of some spice or pungent substance to give it poignancy — either wine, lime juice, but mostly pepper and salt. It is raised from seeds.

ANCHOVY PEAR. (*Grias cauliflora.*) Loudon.

This is, in the West Indies, an elegant tree, rising to the height of fifty feet. The leaves are two or three feet long, and oblong. The fruit is oval, the size and shape of an alligator's egg. It is pickled and eaten like the mango of the East Indies, which it greatly resembles in taste. It is raised from the stones, and grows in moist bottoms or shallow waters.

AURUCANIAN PINE, OR PEHEUN,

Is by some supposed a new genus; its branches form a quadrangular pyramid; the leaves are three inches in

length, heart shaped, hard and shining; its fruit attains the size of a man's head, and in taste resembles the chesnut. It grows in Chili. — *Ed. Enc. Art. Chili.*

BREAD FRUIT. (*Artocarpus incisa.*)

A native of the South Sea Islands, where it obtains the size of the oak; the leaves alternate, glaucous, and two feet long. The whole tree and its fruit, while unripe, abounds in a tenacious milky juice. The fruit is the size and shape of a child's head, with a rough surface and thin skin. It is eatable to the core, which is the size of the handle of a small knife. The eatable part is as white as snow, of the consistence of new bread. It is roasted before it is eaten. It is slightly sweet, and its taste somewhat insipid at first. Two or three of the trees of the bread fruit will suffice for a man's yearly supply.

Raised from seeds, layers, or suckers.

CASHEW NUT. (*Anacardium.*)

A native of the East and West Indies and of the Brazils. The tree grows to the height of twenty feet, with leaves like a walnut in form and odor; the flowers in tufts and odoriferous. The fruit is in size like an apple, of a white, yellow, or red color; its taste like a cherry — most of them sweet and pleasant, but sometimes sharp and astringent. The expressed juice affords a fine rough wine, and by distillation a spirit superior to arrack, rum or brandy. The seed is not enclosed in the fruit, but grows on its summit; it is kidney shaped; its hard, rough, black shell, encloses a large kernel, the finest in the world. When roasted they are far superior to pistachios and almonds, and ground with cacao they make superior chocolate. From the trunk there annually exudes often ten or twelve pounds of a fine semi-transparent gum, similar in quality and equal to gum-arabic. The tree produces fruit the third year, and continues productive one hundred years.

CACAO. (*Cacao theobroma.*)

The chocolate tree is a native of South America, and of Mexico. It is there an article of commerce, next only to gold and silver. The tree is beautiful, rising from sixteen to twenty feet in height; it resembles the cherry tree in its form and its leaves; and is splendid when in bloom.

The flowers are small, scarlet and yellow. The fruit is an oval pointed pod, enclosing from ten to thirty compressed nuts, an inch in diameter, enveloped in a soft sweet pulp, of a refreshing taste. When ripe, the pulp and seeds are separated from the pod, and laid on platforms, in masses, to sweat for two days, when they are washed and dried in the sun. The fresh fruit of the chocolate tree eaten raw, is highly antiscorbutic. And the nuts when roasted and ground, are moulded into cakes of chocolate, a highly esteemed, nutritious, and wholesome food. In France small cakes of chocolate sweetened with sugar, and of various forms, are prepared for eating; a fine and nutritious article of food, thus rendered portable, and in great demand. The tree is raised from seeds and from cuttings.

COFFEE. (*Coffee Arabica*.)

The origin of this tree has been assigned to Arabia, and by some to Ethiopia. An evergreen tree, rising from eight to eighteen feet; with leaves like a bay tree, or laurel; the flowers pure white like snow, they resemble the jasmine, and have a fragrant odor. When in full bloom, they resemble trees in the leaf covered with snow. The fruit which is produced in clusters, is a drupe, of a deep red color, resembling a cherry; the pulp of a sweetish, unpleasant taste; it encloses two berries. The pulp is separated by a fluted roller and movable breast board, and by washing; when dried the inner covering or skin is broken by a heavy roller. Coffee should be roasted moderately and infused immediately after. Good coffee has an aromatic flavor, and is deemed wholesome; it is medicinal, and when used immoderately causes wakefulness.

Coffee may be cultivated in the peninsula of Florida. A climate where the temperature is seldom below 55° is most suitable; a soil on gentle declivities. The trees may be set 5 or 6 feet asunder; they begin to yield good crops at three years of age, and the average produce of a tree is two and a half pounds.

The consumption of coffee is very great in Mohammedan countries, and especially Turkey, where their religion forbids the use of wine and spirituous liquors. In our own country its consumption is already very great and is rapidly increasing; 15,000 tons we now annually consume.

COCOA NUT. (*Cocos*.)

A native of the East and West Indies; and an eminently useful tree to the inhabitants of those countries. It rises with a straight trunk to the height of sixty feet. The leaves issue near its summit; they are from twelve to fourteen feet in length, with numerous alternate, sharp pointed leaflets. The flowers grow near the summit in clusters; the fruit in large clusters of from ten to twelve, is enveloped in strong husks; it is a drupe, very large, ovate, with three sharp longitudinal ribs; the shell is a hard, brown, bony substance, almost incorruptible; to its inner surface, the kernel adheres, which is white, firm and sweet. While the fruit is young, its capacious centre is filled with a milky liquor, very sweet, agreeable and wholesome; as the fruit grows older, the milk becomes sharp and cooling, and is of great service in putrid and inflammatory fevers; and highly antiscorbutic. The sap drawn from the trunk, produces by fermentation, wine and vinegar, and by distillation *Arrack*. The husks form very strong and elastic cordage and cables. From the leaves are formed baskets, brooms, and parasols, mats, hammocks, sail cloth, &c. The tree is raised from the nuts planted in a moist soil. There is a small but very excellent variety, not larger than a walnut; a native of Chili.

DURION. (*Durio zibethina*.) Loudon.

A lofty East Indian tree, with leaves like a cherry, the flowers in clusters of a pale yellow. The fruit the size of a man's head, roundish or oblong, it resembles a rolled up hedgehog, with a hard skin or rind. The pulp is of a creamy substance, of a delicate taste. Rumphius says it is, much the most excellent fruit of India. Its smell is at first, heavy and unpleasant, but those accustomed to this fruit, consider it the most excellent of all.

MANGO TREE. (*Mangifera indica*.)

A large spreading East Indian tree, with lanceolate shining green leaves, of a resinous smell. The fruit is a drupe, kidney shaped, some as large as a man's fist; covered with a smooth, softish, pale green, yellow, or half red skin, and containing an ovate, woody, fibrous, compressed nut

or stone, within which is an ovate kernel, soft and pulpy like a damascene plum. "When ripe it is replete with a fine agreeable juice. It eats like an apple, but is more juicy. It is esteemed very wholesome, and except pine apples, it is preferred to any other fruit in India."

Raised from cuttings or from seeds.

MANGOSTAN. (*Garcinia mangostana.*) Loudon.

A native of the Molucca Islands, but cultivated in Java and Malacca. An elegant tree, rising twenty feet, with a parabolic head, a taper stem, branching like a fir tree, with oval leaves seven or eight inches long. The flower like a single rose. The fruit round, the size of an orange, the shell like the pomegranate. The seeds are disposed like those of the orange, and surrounded by a soft juicy pulp of a rose color, of a delicious flavor, partaking of the strawberry and the grape, and esteemed the richest fruit in the world. It is wholesome alike for those in health or in sickness.

MAMMEE. (*Mammea Americana.*)

A native of the Carribee Islands. The tree grows tall and handsome; the leaves are oval, shining, of a coriaceous consistence; the flowers in peduncles are large, white, of a sweet odor. The fruit is roundish, of the size of an egg. In its flavor and consistence, it is not unlike an apricot. It is eaten either in its raw state and alone, or in slices in sugar and wine; or it is preserved in sugar.

PALM TREE OR DATE. (*Phœnix dactylifera.*)

A native of Syria, Palestine, Egypt, and the other warm countries; it there rises to the height of 100 or 150 feet. In Europe it grows as far north as Geneva and Nice; it flourishes also in Spain. No tree perhaps, is more useful for its fruits, throughout Barbary and Egypt, the deserts of Northern Africa and Arabia. The fruit is an oval drupe, of a yellowish color; the pulp soft, saccharine, of a vinous flavor; it encloses a large oblong stone. The date constitutes an important article of food in many countries. They are imported in a half dried state. A strong and excellent liquor is obtained from the fruit by fermentation, which is much used in Mohammedan countries. From the

fruit also *palm oil* is made. This oil is used as a substitute for butter, and possesses a strong and agreeable odor. The tree is raised from seeds and suckers; they commence bearing at from three to six years of age. The timber is eminently useful and almost incorruptible.

ROSE-APPLE. (*Eugenia*.) Loudon. Bon Jard.

JAMROSADE. E. JAMBOS.

A tree from India, rising to the height of from ten to thirty feet; leaves long, lanceolate and shining. The flowers are in clusters, of a yellowish white. The fruit the size of hen's egg, with the taste of an apricot, and of the flavor of the rose. Some are white, some are red, and some are yellow.

MALAY APPLE. (*E. Mallaccanesis*.) Another species; the tree and the leaves are larger. The fruit is ovate, an inch and a half in diameter, fleshy, with a sweet odor like the rose, agreeable to the taste and sight, and deemed wholesome. Common in most of the South Sea Islands. They are raised from seeds, and require a warm, moist atmosphere.

TAMARIND. (*Tamarindus*.) Phillips.

So called from *Tamar* (*Date* in Arabic). The tamarind is cultivated in Arabia, Palestine, Egypt, and the East and West Indies. The tree is very large, with spreading branches and thick beautiful foliage. The leaves are pinnate, smooth, oblong, entire, of a bright green; they close at night. The fruit is a pod from two to five inches long, inclosing from two to five seeds. The outer pod is thick, the inner as thin as parchment, inclosing the pulp, which is a soft pulpy substance. The fruit may be preserved in jars, with alternate layers of sugar. But in the West Indies the following mode is adopted. The ripe fruit is taken out of the pod, and placed in layers in a cask; and the boiling syrup from the first copper in the boiling house, just before it begins to granulate, is poured in till the cask is filled; when cool the cask is headed.

TRYPHASIA. (*Aurantiola*.) Hort. Soc. Cat.

THREE LEAVED TRYPHASIA. *Limonia trifoliata*.

The fruit resembles a small orange, and is aromatic. It rises to a compact shrub or tree.

VARRONIA PLUM. (*Varronia alnifolia.*) Hort. Soc. Cat.

This fruit resembles a small plum. It grows against a south wall (in England). It has borne fruit in the Botanic Garden of Madrid, and is believed to be a native of Mexico.

APPENDIX.

VEGETABLES.

AN ACCOUNT OF THE MOST USEFUL KNOWN.

IN THREE CLASSES.

CLASS I. Vegetable Roots.

CLASS II. Pulse, Vegetable Tops, &c.

CLASS III. Salads, Pickles, Savory Herbs, &c.

A part of the article on vegetables was prepared for the former edition. But its publication was then given up for the time, and the materials, so far as prepared, were given up to a friend, to be transferred, if he saw fit, to another publication. I have, in this article, consulted the first authorities.

PREPARATION OF THE SOIL.

The ground for the reception of fine seeds of vegetables, should be broken up in the preceding year, and well manured in autumn, and rendered fine in spring by repeated ploughing and harrowing or raking. Plough and manure deep for deep rooted vegetables; but manure near the surface only for all others. Potatoes and Indian corn answer well and produce large crops in ground newly broken up. Very fine seeds should be sown in a newly prepared fresh soil, and covered only a quarter of an inch deep; larger seeds deeper in proportion to their size: and the ground to be immediately trodden hard, or rolled with a heavy roller. This enables the earth to preserve its moisture at its surface, where at the same time the seeds may receive the necessary degree of heat from the sun and vegetate at once, striking root downwards. Fine seeds, if sown too deep, are liable to perish.

HOT BEDS.

By bringing forward many kinds of vegetables in a hot-bed, and transplanting as soon as the weather becomes sufficiently warm, you may be enabled to produce ample supplies of many kinds, a month earlier than in the open ground, many of our finest vegetables being natives of the tropical countries.

The materials for the formation of the bed may consist of leaves, tanner's bark, or fresh straw manure from the horse stable. The

last for this purpose is to be preferred ; but one third part of tan, mixed with two thirds of manure, makes a heat less violent, and more durable than manure alone.

A frame six feet square is composed of four boards ; the front board a foot deep ; the back or north board eighteen inches. This frame is covered with two sashes formed of small cheap glass, five by seven inches. The sashes may be provided with hinges on the back side, for the purpose of raising the front and giving air occasionally. The surface of the earth, as Mr Knight has recommended, should be inclined towards the horizon in an angle of 15 degrees. Prepare therefore the surface of the earth by sinking the front only to the required depth, and of a width and length exceeding that of the frame. The manure from the stable is now to be built up on this foundation by placing successive layers of manure with a fork to the height of about fourteen or fifteen inches, and pressed or trodden gently throughout, its surface corresponding in its inclination with its earthy foundation : the dimensions six inches wider on every side than the frame. On this the frame is placed, and covered with the sashes, and in about two or three days, if the weather is pleasant, cover the surface with rich loam from seven to twelve inches deep, and again put on the lights. If the excess of heat and fermentation is too great, raise the glasses a little in front, and when the earth is of the right temperature, or in about ten days from the commencement, plant your early cucumber, radishes, lettuce, cabbages, &c. &c., and as these increase in size, they may be transplanted either to the open ground or into other hot-beds, and allowed more space, and thence to the open field. In cold wet weather the sides may be protected by straw or litter placed around them ; and the heat may be renewed by cutting down square the outside, and piling fresh manure around the sides and the frame. The hot-bed should be prepared in March, and made ready by the end of winter.

INSECTS. (See also Insects, p. 49.)

PYROLIGNEOUS ACID is not only destructive to insects, but protects the bodies of trees to which it is applied, even from their approach.

CAMPHOR is powerfully repulsive, from its strong odor.

BITTER ALOES.—Plants, according to Mrs Tredgold, are completely protected against insects, by washing them in an infusion of bitter aloes, which does not in the least injure the plants, and the effects of a single application are stated to be lasting.

FLAME FIRES.—Samuel Preston of Stockport, Pa. has successfully destroyed insects in his garden and melon grounds, by flame fires of shavings, at night ; the giddy insects rush into the fire from all quarters. He is satisfied that one shilling's worth of labor in an evening will secure a garden from their depredations, if not in time exterminate them. Fuel suitable may consist of the mowings of brush pastures or roadsides.

FLAMBEAUX.—Dr Harris recommends as effectual to wind round the end of a stick about a foot and a half long, old rags and swinging tow, dipped in tar or melted brimstone ; let this be stuck in the ground and set on fire ; it will burn a considerable time, and prove the funeral pyre of myriads. Staves of tar barrels might probably answer as well.

CLASS I.—VEGETABLE ROOTS.

1. ARACHIS HYPOGEA,

Or Ground nut. An annual plant, with long trailing stalks. A native of Mexico, but now cultivated in the West Indies for its nuts, which are oblong and grow beneath the surface. These are used by the negroes as food. But in France they are now cultivated for the abundance of the oil they produce. This is said to be equally valuable for the table and other purposes to the oil of olives, and superior to that for burning. A bushel of the nuts produces by cold expression a gallon of oil; but more may be produced by heat, but of a quality inferior.

2. ARRACACHA, of the order of *Umbelliferae*.

A plant from South America, which some have supposed may supersede the potato. Its main root divides into four or five large prongs. It is cultivated at Santa Fe and Caraccas, and is light, starchy, and wholesome. It is said to thrive best in the elevated regions of mountains, where the medium heat does not exceed 60°. It deserves trial with us.

3. ARROW ROOT. *Maranta*.

A perennial plant, a native of South America. The roots are tuberous, jointed, and produce a starch, one of the most nourishing of vegetable substances, and useful in medicine. Its successful cultivation has been introduced in the Southern States. It requires a light, rich soil, and is propagated by dividing at the root. It is very productive, for according to Mr Russell, from two small tubers, twelve bushels were produced in two seasons at St Helena.

4. BEET. *Beta*.

An annual plant, a native of the South of Europe. The leaves are long, thick, and succulent; the root large, of a tuberous or conical form, and sweet taste.

I shall describe the Beet under three heads.

1st. Those whose roots only, are used for culinary purposes.

2d. *Poirees*, or those whose tops constitute the main part which is used in cookery.

3d. Beets for forage of domestic animals.

I. BEETS.

1. *Early Blood Turnip Rooted*.

2. *Early Dwarf Blood*.

3. *Long Blood Beet*.

4. *Early Orange*, or *Yellow Turnip Rooted*.

5. *Early White Scarcity*.

No. 1 is of fine quality and is deemed earliest; it will grow in thin soils, and the tops are valuable for greens. No. 3 is the most valuable for the main crop. The roots of these varieties are a superior class of vegetables for boiling; they are also used as salads, and form a highly esteemed pickle. For an early crop, sow as early

in April as the ground will admit, and from thence to the early part of June for the winter crop; in rows a foot asunder and four inches apart in the row.

II. POIREES.

6. *Sir John Sinclair's Beet*, or *Swiss Chard*.

7. *Green Beet*.

The Swiss Chard has leaves nearly three feet long; the stalks are remarkably large, long, white, tender and succulent. They are boiled like asparagus, and the leaves like spinach. It is much used in Switzerland and in France, furnishing a very superior article for greens during summer. No. 7 is used for soups and stews.

III. BEETS FOR FORAGE OR THE FOOD OF DOMESTIC ANIMALS.

8. *Mangel Wurtzel*, or *Disette*, or *Scarcity*.

9. *French Sugar Beet*, or *White Prussian*.

Both these varieties grow about half way out of ground and of extraordinary size. For these reasons they are peculiarly calculated for being raised in large quantities as food for horses, cattle, &c.; both kinds producing enormous crops. In 1824, Messrs. T. & H. Little of Newbury, Mass. raised on a single acre a crop of mangel wurtzel weighing 74,518 lbs. The ground should be thrown in ridges two feet asunder by back furrowing, the top being levelled, the seed sown and covered two inches deep, and the ground well rolled; the plants being finally left a foot asunder in the row. Mangel wurtzel, according to the analysis of Sir Humphrey Davy, contains more nourishment than carrots, and late experiments seem to have proved, it. No. 9 is the kind recommended by M. Achard as the best of all for sugar; formerly great quantities were made in France from this root, and the refuse affords a most nourishing and fattening food for horses, cattle, and swine. All kinds of beets should be gathered before hard frosts commence; wring off the tops and lay them in conical piles, cover first with leaves and then with earth, and before winter sets in, remove them to the cellar.

5. BREAD ROOT. *Psoralea esculenta*.

A southern perennial plant, a native of Missouri. Its roots are eaten like those of the potato, and with cultivation produces abundant crops.

6. CARAWAY. *Carum carui*.

A hardy biennial plant, rising three or four feet in height. The seeds are used in confectionary, cakes, &c., and to flavor alcohol. They are esteemed the finest of stomachics and carminatives. The roots are long and tuberous or conical, and esteemed even more delicious than the parsnip, and fully equal on all accounts even to Scorzonera. Cultivation the same as carrots, which see.

7. CARROT. *Daucos carotta*.

A hardy biennial, rising to the height of three or four feet. The roots long and conical, they are boiled with meat and fish and used in stews and soups. They are excellent food for horses and cattle, being but little inferior to mangel wurtzel.

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|---|------------------------|
| 1. <i>Early Short Orange</i> (for forcing.) | 4. <i>Purple</i> . |
| 2. <i>Early Horn</i> . | 5. <i>Altringham</i> . |
| 3. <i>Long Orange</i> . | 6. <i>Lemon</i> . |

No. 2 is fine for the table. No. 3 is fine for the table, and suitable for the main crop. The purple is highly prized in the West Indies. The Altringham and Lemon are the suitable kinds to raise for horses and cattle, from the very great crops they produce. Sown in April or May, in rich sandy loam, in rows a foot asunder, the plants being left four inches distance in the row; bury the seeds half an inch in depth, and roll the ground. Gather in the crops as soon as the first hard frosts commence, and house them before winter, in warm cellars.

S. S. 8. GINGER.

An herbaceous perennial plant, a native of the East Indies or the Western World; cultivated in New Spain, but especially in Jamaica to a great extent. The stalks rise like reeds to the height of two and a half feet; the leaves narrow and lanceolate; the roots creeping, in tuberous joints. In autumn the soundest roots are scraped clean and carefully dried in the sun. But the poorest roots are scalded previously to drying. Ginger forms the finest preserve in the world. For this purpose they are dug as soon as the stalk has risen six inches; these being scalded and peeled, are washed in cold water, and steeped during three days, the water being often changed; they are then preserved in sugar and placed in jars.

9. LEEK. *Allium porrum*.

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|--------------------------|--------------------|
| 1. <i>Large Scotch</i> . | 2. <i>London</i> . |
|--------------------------|--------------------|

A species of onion. Its uses and cultivation are much the same. Sow in April or May. As the plants approach maturity, cover the bulbs with earth, to blanch, and give them a sweet flavor.

10. LIN-KIO. *Ed. Enc. Art. China*.

A species of Water Chesnut, which grows in China; of a cooling and agreeable taste. It is sometimes sold like filberts, in a green state; sometimes dried, powdered, and made into soup, and sometimes baked in the oven with sugar and honey. They sow the seeds at the end of autumn, in the shallowest places of ponds and rivers, in a south exposure.

11. ONION. *Allium sepa*.

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|-----------------------------------|--------------------------|
| 1. <i>White Portugal</i> . | 4. <i>Tree Onion</i> . |
| 2. <i>Yellow or Straw Color</i> . | 5. <i>Potato Onion</i> . |
| 3. <i>Large Red</i> . | |

The White and Yellow are esteemed superior to the Red onion. The Tree onion is a perennial, producing bulbs on the summit of its stalks, which are valuable for pickling or other uses; it is propagated from the bulbs of its tops or roots. Sow the seeds of onions from the tenth of April to the first of May, in rows a foot asunder, the plants finally to be thinned to two inches apart; the seeds to be covered one fourth of an inch, and the ground rolled. For an early crop sow early in autumn, and protect during winter by a covering of litter. Another is the mode recommended by Mr Knight for

producing very large and early crops; it consists in sowing the seeds very thick, upon poor ground, and beneath the shade of trees. These grow only to the size of peas the first season, when they are taken up and dried, and planted the following spring. The Potato onion is very hardy, mild, productive, and exceedingly early. It is raised only by planting the bulbs. Plant the bulbs early in April, in rows a foot asunder, and eight inches apart in the row, an inch deep. Earth them up as they grow; they reproduce in large clusters. Onions should be gathered as early in autumn as the tops decay, and dried and preserved in a dry place, secure from frost.

12. OXALIS CRENATA. Loudon.

An ornamental plant, a perennial, a native of Chili, and there lately discovered by Douglas. The flowers are beautiful, of a yellow color, and in umbels. The stalks and leaves are succulent, of an acid taste, and useful as salads. The roots or tubers are produced in clusters, their taste when boiled somewhat resembles a chesnut. They are raised from the tubers, and are extraordinary productive, and as easy to cultivate as the potato, and decidedly superior in flavor. They require a rich soil and like the potato, they are stored during winter in cellars.

13. PARSNIP. *Pastinaca sativa*.

1. *Guernsey Parsnip*. 2. *Common Parsnip*.

The parsnip is a biennial plant, the root is very long and conical; a delicious and sweet food when boiled for the table. A superior article for cattle, producing large crops.

The Guernsey is an improved variety. Sow the seeds in April in rows a foot asunder and thin the plants to three inches' distance in the row.

S. S. 14. PEE-TSEE. *Ed. Enc. Art. China*.

A species of water chesnut, which grows only in the southern provinces of China, in shallow rivers and ponds, with leaves like a bulrush, and hollow like the stalk of an onion. Its fruit in the capsule of its root, like the husk of a chesnut.

15. POTATO. *Solanum tuberosum*.

A perennial plant, a native of South America. The varieties are innumerable. Where great crops are desired, plant the potatoes in shallow furrows three feet asunder. Choose the most productive and best kinds, cut the largest in two or four pieces. Plant at the rate of twenty bushels to the acre according to the state of the ground and the productiveness of the kind, sometimes twentyfive bushels to the acre are required, more being generally lost by an ill judged parsimony in the first instance than by overstocking the ground with seed.

But the precise quantity depends on various circumstances; six or seven hundred bushels to the acre is not unusual. Never earth up potatoes. Potatoes afford in some cases a large portion of starch, and this starch by some slight alteration may be converted into nearly its own weight of sugar. Plant from April to the last of July, near the surface, cover three inches; hoe twice or thrice.

16. ROCAMBOLE. *Allium scorodoprasum*.

A hardy bulbous perennial plant, of the onion or garlic species; the root resembling the latter, but of more delicate flavor. Its cultivation is not much unlike that of the onion.

17. SALSIFY, OR VEGETABLE OYSTER. *Tragopogon porrifolius*.

A hardy biennial, producing beautiful flowers of a fine blue color. The root long and tapering or conical, of a white color and sweet taste. The outer rind being scraped off, they are steeped in vinegar to extract the bitter taste, then boiled or stewed like parsnips. Sow the seeds in April and manage the same as for parsnip.

18. SALSILLA. *Edible alstrameria*.

A very beautiful herbaceous plant, a native of Peru. Its roots are eaten like the potato. It is cultivated in the West Indies, and may answer well in many parts of our country.

19. SCORZONERA. *Scorzonera hispanica*.

A perennial plant, a native of Spain. The root is small and tapering. Prepared by steeping in vinegar as directed for salsify, and boiled and stewed, it is an excellent vegetable. Sow as for parsnips in April, but allow less distance.

20. SHALLOTS. *Allium ascalonicum*.

A species of onion, the bulbs compound like those of garlic. A hardy perennial plant, a native of Ascalon and of Palestine. It is used to give flavor to roast beef gravies, and beefsteaks, &c. also to give a flavor to pickles. They are cultivated by division of the bulbs. Mr Knight directs to place the bulbs on the surface of a rich soil, the mould being raised for support on either side. As soon as firmly rooted, the earth is removed to the bottom of the bulbs, and they are at once well watered, and thus growing wholly on the surface, they soon assume the size and form of onions; the crop is thus rendered more abundant, and the quality greatly improved.

21. SKIRRET. *Sium sisarum*.

A perennial plant, a native of China. Its roots are tuberous and branching. When boiled, stewed or fried, with butter, pepper, &c. its flavor is sweet and agreeable. Sow the seeds in April or May and cultivate as for salsify or parsnip.

22. SWEET POTATOES, OR CAROLINA POTATO. *Convolvulus batatas*.

A tender perennial plant, a low creeping vine, a native of the Southern States. The roots are long tubers, of a white or red color; when boiled, baked, or roasted, they are of a sweet, agreeable taste, and form a nourishing and wholesome food. It is raised from slips of the roots. The sweet potato is often cultivated as far north as Boston; the slips are usually procured from New Jersey, as they are difficult to preserve except in dry warm chambers secure from frost. These are placed vertically in a hot bed in April. When sprouted they are transplanted to the open field, in a dry warm situation, to a

sandy, but well manured soil; they are placed in elevated hills, six feet asunder each way. The vines as they extend must not be suffered to strike root.

23. TRAPA NATANS. Neill.

This plant grows in ponds, and is eaten like the chesnut. The canal of Versailles is covered with the plant, and the root is sometimes served up at table.

24. TURNIP. *Brassica rapa*.

A hardy biennial plant.

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|---|--------------------------------|
| 1. <i>Early White Dutch</i> . | 5. <i>Yellow Stone</i> . |
| 2. <i>Early Stone</i> . | 6. <i>Yellow Maltese</i> . |
| 3. <i>White Flat</i> . | 7. <i>Long Yellow French</i> . |
| 4. <i>Large English Norfolk</i> . | 8. <i>Yellow Aberdeen</i> . |
| 9. <i>Ruta Baga, Russian, or Yellow Swedish</i> . | |

Turnips may be sown broadcast: very early for the early crop as late as midsummer for the late or main crop; or, they may be sown in rows at distances proportioned to their sizes. No. 1 is esteemed the best for an early crop. Nos. 5, 6, and 8 are new varieties of superior quality, of a rich taste and fine for keeping. No. 9 is also of a fine rich quality, retaining all its goodness to a late period in spring. This kind produces enormous crops, and is a valuable article of winter food for cattle. No. 7, is a very superior new kind, from *Teltow*, near Brandenburg, of small and slender form; those sown at midsummer keep till spring, and are of great excellence, whether stewed, or cooked by other modes. The best turnips for the table are raised in poor ground, has a skin of a coal black color.

S. S. 25. YAM. *Doiscoreau*.

A climbing plant cultivated in the East and West Indies. Its roots are very large, flattened, sometimes palmated. It is boiled or roasted like the potato, and is wholesome, palatable and nutritious. The flour is also used for puddings and bread. *D. alata* is equally cultivated; its root is three feet long and often weigh thirty pounds. Of both kinds there are numerous varieties.

CLASS. II. — PULSE, VEGETABLE TOPS, &c.

26. ARTICHOKE. *Cynara scolymus*.

A native of Italy and the south of France. The Globe artichoke is preferred. The flower heads, after the bristles or choke is removed, and while in an immature state, are boiled in water with a little salt till tender, and thus eaten, sometimes they are fried and used in ragouts, and while very young they are used as salads; at other times they are pickled. This is not the *Jerusalem artichoke* which is a native of Brazil. It is a perennial, and is propagated by offset suckers, separated in April and three or four are planted in a hill; the hills in rows four feet asunder, and two feet distance in the row; in a deep rich soil. They require to be slightly protected by litter in winter.

27. ASPARAGUS. *Asparagus officinalis*.

A perennial plant of the most hardy description. The young sprouts are delicious food boiled.

1. *Large Early Dutch*.3. *Gravesend*.2. *Battersea*.4. *Large White Reading*.

Sow the seeds an inch deep, in spring, and when the plants are a year or two old, plant them in rows fifteen inches asunder, and a foot apart in the row, in a soil made exceedingly rich, to the depth of ten inches. The asparagus in its native state is a dwarfish plant, with fibrous roots which do not go deep; but to be raised in its greatest perfection, and of a large size, the ground must not only be made rich at first, but kept to by being covered every autumn with a coat of manure, which is to be forked in very early in spring.

28. BEANS. *Phaseolus*.

An annual plant or vine; a native of the warm latitudes. It rises from two to ten feet, the stalk thick and angular, the leaves pinnate; the flowers of fragrant odor; the seeds large, ovate, flattened — inclosed in a long pod.

I. ENGLISH DWARFS.

1. *Broad Windsor*.5. *Horse*.2. *Early Mazagan*.6. *Sword Long pod*.3. *Green Nonpareil*.7. *Dwarf Bonavista*.4. *Heligoland*.

These are gathered and shelled when green. Sow them in rows three feet asunder and three inches in the row, and two inches deep, in a dry soil, as early in April as the ground will answer, after the hard frosts are over. No. 7 is said to be one of the most productive and finest of Bush Beans.

II. KIDNEY DWARFS OR STRING BEANS.

8. *China Dwarf*.13. *Early White Cranberry*.9. *Mohawk*.14. *Red Cranberry*.10. *Marrow or Thousand-to-one*.15. *Large White Kidney Dwarf*.11. *Early Quaker*.16. *Early Yellow Six-weeks*.12. *Early Yellow Cranberry*.

The China dwarf is the earliest; the Mohawk is early and very hardy; the Marrow, or Thousand-to-one, is early and long in bearing, the pods remarkably tender, and the finest of all string beans. Soil and distance the same as English Dwarfs; sown from the first to the last of May.

III. POLE OR RUNNING BEANS.

17. *Large White Lima*.22. *White Dutch Case Knife*.18. *Small White Lima, or Saba*.23. *Red Cranberry*.19. *Large Scarlet Runners*.24. *White Cranberry*.20. *Large White Dutch Runners*.25. *Yellow Cranberry*.21. *London Horticultural*.26. *Prolific Lima*.

No. 23 is a new kind from South America; from the extreme tenderness of its pods it is a superior string bean. Nos. 23 and 24 are valuable string and shell beans; No. 21 is a productive bearer and excellent shell bean; Nos. 17 and 18 are unrivalled in their

flavor as shell beans only. No. 26 is said to be the best of all beans, and fully equals the Lima, but hardier. Plant as soon as the ground will answer, in May or the last of April, in hills four feet asunder, and ten beans in a hill. Plant the Lima beans 10th of May.

29. **BORECOLE.** *Brassica oleracea selenisia.*

A species of kale or cabbage, of the most hardy description. The head open, the leaves wrinkled or curled. The crown or centre, when ameliorated by frost, is cut and boiled; they are extremely delicate, tender, and sweet. Sow the seeds in April and May, and manage as cabbages. Before winter, transplant to trenches and cover with straw for winter use. The stalks planted in spring produce delicious sprouts.

30. **BROCCOLI.** *Brassica v. asparagoides.*

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|------------------------------|---------------------------------------|
| 1. <i>Early Purple.</i> | 4. <i>White Cape, or Cauliflower.</i> |
| 2. <i>Early White.</i> | 5. <i>Brimstone, or Portsmouth.</i> |
| 3. <i>Large Purple Cape.</i> | |

A biennial plant, much resembling the cauliflower; one of the finest luxuries of the garden; the heads are boiled and eaten with butter, or the gravy of meat. The Portsmouth is very large; the Large Purple Cape is very fine. Sow in April and May, in a very rich soil, in rows two feet asunder and two feet in the row, several seeds together, and tread the ground very hard. Leave finally but a single plant in a place. Hoe frequently but shallow, and earth once. They flower from August to late in autumn.

31. **BRUSSELS SPROUTS.** *Brassica oleracea jemmifera.*

A delicate species of cabbage which rises three or four feet in height. Small heads an inch or two in diameter issue from the base of the leaves; these, after being duly ameliorated by frost, form a delicate article when boiled. Protected during winter they furnish fine sprouts in spring. Sow in May and cultivate as for cabbages.

32. **CABBAGE.** *Brassica.*

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|------------------------------|--|
| 1. <i>Early York.</i> | 10. <i>Pancalier Savoy.</i> |
| 2. <i>Early May.</i> | 11. <i>Large Bergen or Great American.</i> |
| 3. <i>Early Low Dutch.</i> | 12. <i>Large Late Drumhead.</i> |
| 4. <i>Early Battersea.</i> | 13. <i>Large Scotch.</i> |
| 5. <i>Early Sugar Loaf.</i> | 14. <i>Large Green Glazed.</i> |
| 6. <i>Chou de Milan.</i> | 15. <i>Red Dutch.</i> |
| 7. <i>Yellow Savoy.</i> | 16. <i>Turnip Rooted.</i> |
| 8. <i>Large Cape Savoy.</i> | 17. <i>Turnip rooted, or Arabian.</i> |
| 9. <i>Green Globe Savoy.</i> | |

A biennial plant. When boiled it forms a wholesome and agreeable food. In making sour krout, the heads of cabbage after being chopped fine, are strewed in layers in a barrel, and a handful of salt, mixed with a few caraway seeds, are strewed between each layer, till the barrel is filled. A heavy weight is now placed on the mass, and as soon as the fermentation, which soon commences, has subsided, the weight is removed and the barrel is headed. A fine article for the sea stores of ships sailing on distant voyages, a

powerful antiscorbutic and highly relished by all who become accustomed to it, when boiled with beef.

Savoy cabbages are deemed nearly equal to cauliflowers. No. 10 is said to be the best of all, and cabbages set in spring, produce fine sprouts. The Red Dutch, after being salted fortyeight hours, forms a good article when pickled in vinegar. The Large Dutch and Drumhead are profitable to raise for the food of cattle; 44 tons were raised in 1821, by Mr E. H. Derby, of Salem, on an acre. For early cabbages, sow in March, in a hot-bed. For a late crop, sow in May, stamping the ground hard. Set the small kinds two feet asunder each way — the large kinds three feet apart every way, and hoe often. In autumn strip the outside leaves and set the cabbages in earth in compact beds, protect by a covering of straw or seaweed.

33. CARDOON. *Cynara cardunculus*.

1. *Spanish Cardoon*.

2. *Cardoon of Tours*.

A gigantic plant, rising from four to five feet, much esteemed and cultivated in France. The thick ribs, or stalks of the leaves when full grown and blanched, are tender and of a delicate flavor. Sow the seeds in April or May, in the bottom of trenches which are dug six inches in depth, and in rows four feet asunder and eighteen inches apart; leaving finally but a single plant in a place. The soil deep, light, and rich; water in dry weather. When the plant is nearly full grown, or in September, and in a dry day, tie up the leaves lightly, bringing the ribs in contact with strong matting. Cover the whole two thirds of its height, by winding closely a twisted hay band, an inch and a half in diameter, from the bottom, upwards; they will soon become blanched and tender. To secure from hard frosts, earth up, in a dry day, against the bands, and otherwise secure the plants in winter. It is used in stews, soups, and salads.

34. CAULIFLOWER. *Brassica oleracea botrytes*.

A species of cabbage, of a most superior kind, the head or flowers only being used. Sow in September, and preserve the young plants during winter, for an early crop. For a late crop, sow in April. Transplant into very rich, and rather moist loam, three feet asunder every way. Tie up the tops gently, but close over the head to blanch them. Boiled in a linen cloth, and eaten with melted butter, this vegetable is superior.

35. DANDELION. *Leontodon taraxacum*.

A well known and extremely wholesome vegetable for early greens and salads, of a slightly bitter, but agreeable taste. It is reputed to possess valuable medicinal properties. Sow in April or May, in a rich soil, or it may be propagated by division of roots, and improved by blanching.

S. S. 36. EGG PLANT. *Solanum melongena*.

1. *Purple (useful)*.

2. *White (ornamental)*.

An annual plant which rises two feet or more in height; the fruit which is produced in abundance, is very beautiful, in form that of an egg, in size that of an ostrich. Sliced and properly fried with

ham, it is a delicious vegetable. Sow the seeds in a hot-bed in March, and transplant to the distance of two feet asunder in the open air, in May. A good portion of heat and of moisture are necessary, otherwise the seeds do not readily germinate.

37. HIBISCUS. *Hibiscus esculentus*. (*Gombo*.)

A tender annual variety of Hibiscus, a native of the West Indies, and now cultivated in the South of France. It rises four or five feet, and produces capsules which are used while green in soups or eaten with butter.

38. INDIAN CORN. *Zea mays*.

1. *New Early Dwarf*.

2. *Sweet, or Sugar*.

These are the two principal kinds used at table. The New Early Dwarf is very early and good for boiling. The Sweet is a kind well known; it shrivels in drying, and is superior to all others for boiling. To preserve this kind for boiling in winter, it is first boiled in the husk, at the time while the kernel is yet tender, and after being husked it is hung up by the husks in the sun, till thoroughly dry, it is shelled and laid by for use. When wanted, the corn is steeped in water over night, and to this same water beans are afterwards added, and the whole are boiled together. A delicious article; it is called Succatosh. Plant as soon as the ground becomes warm, in April or May, in rows four feet asunder, and in hills two feet apart in the row; eight kernels in the hill; cover two inches deep.

39. KALE. *Brassica oleracea sabellica*.

Cæsarean Kale, or Cow Cabbage. *Green Curled Scotch Kale.*

The Cæsarean Kale, in congenial soils and climates, is a gigantic plant of the cabbage tribe; a most profitable article for the food of cows.

40. PEAS. *Pisum sativum*.

1. *Bishop's Early Dwarf*. 1 foot.
2. *Russell's New Early Dwarf Prolific*. 1 foot.
3. *Dwarf Blue Imperial*. 1½ feet.
4. *Dwarf Blue Prussian*. 2½ feet.
5. *Dwarf Scymetar*.
6. *Knight's Dwarf Marrowfat*. 2½ feet.
7. *Knight's Tall Marrowfat*. 6 feet.
8. *Woodford's New Tall Prolific*. 5 feet.
9. *Dwarf Sugar (eatable pods)*. 3 feet.
10. *Tall Sugar, (eatable pods)*. 4 feet.
11. *Egg Pea*.
12. *Spanish Morotto*.

Sow Early Peas as soon as the ground will admit in March. A quart of Early Dwarf Peas will sow a row of 300 feet, rows three feet asunder. Nos. 1 and 2 are reputed the finest of the early kinds. Nos. 3 and 5 are very productive and of delicious flavor. Nos. 6 and 7 are most superior late kinds for flavor and productiveness. No. 8 is of a fine green color, and bears well a long time. Nos. 9 and 10 or the Sugar or String peas, are fine, sweet, and productive kinds, the pods and peas being of delicious flavor. The Egg Pea

and Spanish Morotto are famous for their hardiness and productiveness. The tall species of peas are sustained by brush wood set in the rows. Some sow them in small circles; as they rise, they support each other.

41. PUMPKINS. *Cucurbita pepo*.

1. *Connecticut*.

2. *Mammoth*.

Plant the seeds in April or May, in very rich ground; two plants to a square rod are sufficient. Pumpkins are valuable food for the table either baked or stewed; and valuable for fodder for fattening cattle or swine. Great crops are raised in cornfields with Indian corn, by dropping a seed in every eighth hill. The seeds produce a valuable oil on expression. The Mammoth Pumpkin has weighed 226 pounds.

42. SEA KALE. *Crambe maritima*.

A hardy perennial plant; a delicate and superior vegetable, as yet but too little known. It is said to grow wild on various parts of the sea shore of Britain, where it is eagerly sought after in early spring. The young, tender, and unexpanded leaves and stalks, in a blanched state, are extracted from the pebbles and sand in which they are found buried, and out off several inches beneath the surface, at the crown of the root. It will yet grow well in the interior, in any good, deep, dry soil, for the root goes deep. The plants should be placed in rows four feet asunder, and a foot or eighteen inches in the row. In March cover it with sand or earth, in boxes or pots, to blanch it—this renders it more beautiful to the eye, more tender, and delicate. Or it may be forced, by covering the pots or boxes with hot manure. Boil it *thoroughly* in water, or milk and water is better; serve it up with melted butter like the cauliflower. Sow the seeds as soon as ripe, and they readily vegetate; but if kept till spring they require to be cracked. Plantations are readily formed of pieces of roots two inches long, placed upright beneath the soil.

43. SPINACH, OR SPINAGE. *Spinacia oleracea*.

1. *Round Leaved, or Summer*.

3. *New Winter*.

2. *Prickly Leaved, or Fall*.

4. *New Zealand*.

A most superior vegetable for greens; an annual plant. The seeds of No. 1 may be sown in a rich soil, from April to July. No. 2 may be sown in August or September for early spring. The New Winter is a kind, not common, from France; the leaves fourteen inches long, eight inches broad, very thick and succulent. The New Zealand, *Tetragonia expansa*, is a fine spreading plant, yielding a supply of leaves during the whole summer. Sow this last early, in a hot-bed, or warm situation, in April or May, and transplant, giving them three feet space.

44. SQUASH. *Girauemon*.

A superior vegetable for boiling, baking or stewing; a native of the warm latitudes.

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| 1. <i>Early Orange.</i> | 6. <i>Long Yellow Crook Neck.</i> |
| 2. <i>Early Long Warted.</i> | 7. <i>Commodore Porter's Valparaiso.</i> |
| 3. <i>Early Scallop.</i> | 8. <i>Autumnal Marrow.</i> |
| 4. <i>Acorn.</i> | |
| 5. <i>Canada Crook Neck.</i> | |

The *Early Orange* is a new summer variety, very early and of superior quality. The *Canada Crook Neck* is without doubt far superior to any and all others, for the late or main crop. It is fine grained, mealy, and of a sweet, excellent flavor. By being kept in a dry and suitable temperature, they may be preserved till the following summer. Sow in April or May, as soon as the frosts are over, and the earth becomes warm. The *Early* or *Summer* varieties, in hills six feet asunder; the *winter* varieties in hills eight feet asunder, and four plants may remain in a hill.

AUTUMNAL MARROW SQUASH. *Cucurbita melopepo.*

Introduced to notice by John M. Ives, Esq. of Salem. A fine new variety, of an ovate form, pointed; the skin extremely thin, of a cream color; the flesh orange; the grain delicate, flavor excellent; seeds large, pure white. Average weight, eight pounds. It keeps well in winter.

45. SWISS CHARD. (*See Beets, No. 2, Poirees.*)

The finest kind of beet for greens is the *Swiss Chard*. The stalks of this are of large size, white, tender, and excellent; they boil like asparagus. It is sometimes called "*Sir John Sinclair's beet.*"

CLASS III.—SALADS, PICKLES, SAVORY HERBS, &c.

46. BASIL. *Ocimum basilicum.*

An annual plant from the East Indies, sometimes used in salads in France, but principally and extensively used in that country in high seasoned dishes and soups. The leaves are aromatic and have the strong flavor of cloves. Sow early, in a hot-bed or warm exposition — transplant into rows a foot asunder, and a few inches apart in the row.

CARAWAY. (*See Vegetable Roots, No. 6.*)

47. CELERY. *Apium graveolens dulce.*

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| 1. <i>Large White Solid.</i> | 4. <i>Italian.</i> |
| 2. <i>Rose Colored Solid.</i> | 5. <i>New Silver Giant.</i> |
| 3. <i>Large White Hollow.</i> | 6. <i>Celeriac, or Turnip rooted.</i> |

The stalks of the leaves, when blanched, are used as salads, from autumn to spring; they are also boiled to flavor soups, and sometimes to be used at dinner. *Celeriac* is cultivated for its root alone; it is excellent sliced in soups, for its peculiar flavor; or, boiled till tender it is eaten with oil and vinegar; or it is stewed to flavor rich sauces. This last kind is sown in April, in a hot-bed or warm exposition, and transplanted to fifteen inches asunder every way, in moist, rich ground, but the plants are never earthed up. The

former kinds are sown in April or May, in fine rich earth, and shaded or covered with a board till the seeds vegetate. Transplant to trenches a foot wide, a foot deep, the plants a foot asunder; preserve every leaf, but destroy offsets. Earth up in dry weather, to blanch the leaf stalks.

48. CHERVIL. *Ciersona consfolium*.

1. Common.

2. Curled leaved.

An annual plant; the leaves have a warm and aromatic flavor, and are esteemed for salads; also in high seasoned dishes and soups. Sow in rows a foot asunder, every three weeks, from April to September.

49. CHIVES or CIVES. *Allium schenoprasum*.

A beautiful perennial; a species of small onion. The tops are used in early spring for salads, and the tops and roots as early onions. It is cultivated by divisions of the roots, set six inches asunder.

50. CORIANDER. *Coriandrum sativum*.

A hardy annual plant; the leaves are fragrant, the seeds aromatic, of a pleasant spicy flavor. They are used as spices and in confectionery. Sown in April.

51. CRESS. *Lepidium sativum*.

1. Peppergrass, or curled.

3. Water.

2. Broad leaved Garden.

A hardy annual plant, of a spicy taste; used as a garnish, and in salads. It may be highly improved by cultivation. Sow as for lettuce, and at intervals from April to September.

52. CUCUMBER. *Cucumis sativa*.

1. Early Frame.

5. Long Green Turkey.

2. Early Short Prickly.

6. Long White Turkey.

3. Early Green Cluster.

7. Long Green Prickly.

4. Long White Spined.

8. Girkin, or West India.

A tender vine, an annual plant. The fruit is used raw, in its green state, sliced in vinegar. When young they are extensively used in pickling. Sow as soon as the ground becomes warm in spring; cover a half an inch deep; plant in hills six feet asunder every way — a dozen seeds in a hill, but leave finally but three. The ground must be rich and manured well in the hill. For very early use, sow in small pots, in a hot-bed; turn them into the open ground in May, protecting from the sun and late frosts. For pickling, plant from 10th of June to 10th of July, after a crop of early peas, or a crop of hay. No. 3 is a short and productive kind for open ground. The Green and White Turkey are fine, either in the open ground or for early forcing.

53. ENDIVE, or SUCCORY. *Cicorium endivia crispa scarole*.

1. White Curled.

2. Large Green Curled.

3. Broad leaved Batavian.

A hardy annual from the East Indies; esteemed for salads. Sow

as for lettuce, at intervals from April to July, in a very rich soil. When fully grown, tie over the outer leaves to blanch the heads for use.

54. FENNEL. *Anethum, Finochio.*

This variety is perennial, a native of Italy. It is propagated by seeds sown in April, or by divisions of roots. In a boiled state it is served up with fish.

55. FLORIDA COFFEE. Mr Dupont.

Such is the name described in the Florida Herald of an annual plant growing wild in Cuba, and now growing wild in some parts of Mississippi and about St Augustine. The grains, which are produced fifty or sixty in a pod, are of the size of wheat, of an olive color; their flavor superior to the green coffee of Cuba, becoming by age in three months equal to the best of coffee. A plant of the easiest culture in any poor soil. An acre will produce from 1500 to 2000 pounds. This valuable plant is a native, and grows abundantly in Attakapas in Louisiana. Can this be Okra?

56 GARLIC. *Allium sativum.*

A hardy perennial, a species of onion; a native of the South of France. It is propagated by a subdivision of the bulks. These are set in rows a foot asunder and five inches in the row. Early in autumn take up the roots and dry them.

57. HORSE RADISH. *Cochlearia armoracia.*

A hardy perennial plant. The long and branching roots have a very strong and pungent taste; and scraped in vinegar, they are highly esteemed as salads in winter and spring. It is raised from the crowns, each with an inch or two of root. These are planted in a very rich, deep, and humid soil; in rows a foot asunder, the plants nine inches apart in the row. Or it may be raised from small pieces of the roots, placed upright and buried an inch beneath the surface.

58. ITALIAN CORN SALAD. *Valerianella eriocarpa.*

A new variety, superior to the common kind, and earlier. An annual plant, which is used through winter and early in spring as a salad; it is also valuable early in spring when boiled as greens. Sow in August or September, cover lightly, and thin the plants to three inches.

59. LETTUCE. *Lactuca sativa.*

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| 1. Early Curled Silesia. | 7. Brown Dutch. |
| 2. Tennis Ball. | 8. Magnum bonum Cos. |
| 3. Royal Cape. | 9. Ice Cos. |
| 4. Large Drum Head. | 10. White Cos, or Leaf. |
| 5. Savoy Cabbage, or Green Head. | 11. Green Cos. |
| 6. Large Imperial. | |

A hardy annual plant, one of the finest of salads known. The milky juice of the plant produces drowsiness, like opium. No. 1 is fine and early. No. 2 is fine and early, with small heads; both

these and the Royal Cape are the kinds best known and most highly esteemed in the Boston market. The *Cabbage* or *Head* lettuce grows spreading, with round heads. The *Cos* lettuce grows upright and oblong, and is sweetest. Sow in February and March in hot-beds, for early use, and transplant in April; and at intervals of three weeks from April to September, in rows a foot asunder; the large headed kinds may remain a foot apart in the row.

60. MARJORAM. *Origanum*.

1. *Sweet Marjoram (majorana.)* 2. *Pot Marjoram (onites.)*

The Sweet marjoram is biennial, a tender plant, a native of Portugal; highly esteemed for its savory taste, in highly seasoned cookery. Sown in April in a hot-bed, or in a warm situation and transplanted. The Pot marjoram is a hardy perennial, a native of Sicily; its uses are the same as the preceding. It propagates by division of roots in spring.

61. MARTYNEA. *Martynaea proboscidea*.

An annual plant with conspicuous showy flowers. The green pods are fine for pickling. Sow in May; the plants may remain two feet asunder.

62. MARIGOLD. *Calendula officinalis*.

The Common marigold is a beautiful annual, hardy plant, sometimes used in soups. Sow from April to May. The tops may be preserved by drying.

63. MUSTARD. *Sinapis alba*.

An annual; the young plants of White Mustard are fine for salads. The seed of the *Black Mustard*, ground, is a strong and most pungent seasoning for meat. A tea-cup of water and powdered mustard is an instantaneous and powerful emetic to dislodge poison from the stomach. Sow in April — a hardy plant of the easiest culture, and of the tallest kind.

64. NASTURTIUM, or INDIAN CRESS. *Tropaeolum majus*.

An annual plant, a native of Peru. Its flowers of a beautiful orange color, serve as a garnish for dishes; the leaves are excellent in salads, and the green pods make a pickle esteemed by many superior to capers. Sow the seeds in April or May, an inch deep, on the borders of fences or palings, as they are low climbers; or sticks of brush may serve as their support.

65. OKRA. *Hibiscus esculentus*.

An ornamental plant, extensively cultivated in the tropical countries of America; an ingredient in soups. The seeds when ripe and roasted form by infusion a drink difficult to distinguish from coffee. Sow early in May, cover an inch deep. Cultivate like peas.

66. PARSLEY. *Apium petroselinum*.

1. *Curled or Double.* 3. *Hamburg or Large Rooted.*
2. *Dwarf Curled.*

A hardy biennial plant, a native of Sardinia. A well known and

agreeable savory herb in stews, soups, and the gravy of roasted meat. Sow in rows a foot asunder, from April to July. Soak the seeds in a warm place for twelve hours to make them vegetate, water till the plants appear, as often as the ground becomes dry.

67. PEPPER. *Capiscum annuum.*

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| 1. Long or Cayenne. | 3. Cherry or West India. |
| 2. Squash. | 4. Sweet Spanish. |

A tender annual plant, rising two feet or more in height; the fruit round or oblong. The whole fruit and seeds, all but the Sweet Spanish, have a most pungent and fiery taste. No. 1, when dried and ground, forms the Cayenne pepper of commerce. No. 2 grows large, has a thick shell or pulp, and when fully grown and still green, it is the best of all for pickling. No. 3 is a very small variety, from the West Indies. It is used for pepper sauce, a seasoning for meat. A quart bottle of peppers will last a family for years, keeping it filled with fresh supplies of vinegar. No. 4 has a delicate taste, and is used as a salad. Sow in March in a hot-bed, in April or May in the open air; transplant at the end of spring into a rich soil, the plants two feet asunder every way.

68. RADISH. *Raphanus sativus.*

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| 1. Early Frame. | 6. Scarlet Turnip-rooted. |
| 2. Early Short-top Scarlet. | 7. Violet-colored Turnip-rooted. |
| 3. Early Long Salomon. | 8. White Turnip-rooted. |
| 4. Purple Short-top. | 9. Black Fall, or Spanish. |
| 5. Long White Summer, or Naples. | |

An annual plant; the root is long, of a pleasant and pungent flavor; it is used in salads. Sow every fortnight, from April to September, in a sandy, well manured, and finely pulverized soil. Nos. 6, 7, and 8 are best for early sowing.

69. RAMPION. *Campanula rapunculus.*

A hardy biennial plant, a native of Europe. It rises to the height of two feet, with handsome blue flowers. The root is long, white, and in the shape of a spindle; like the radish it is eaten raw, having a nut-like pleasant flavor. In winter the root and leaves are cut into salads. Sow the seeds in May, a quarter of an inch deep, in a warm situation, and water occasionally. Finally thin the plants to four inches asunder.

70. RAPE. *Brassica napus.*

A hardy biennial plant, valuable for greens early and late in spring. It is used, mixed with mustard and cress or peppergrass, as salad. Sow from April to June.

71. RHUBARB. *Rheum undulatum.*

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| 1. Dutty's Goliah. | 3. Wilmot's Early Red. |
| 2. Elford (var. undulata.) | |

A hardy perennial plant, a native of Asia. The leaves are very broad and two feet long. Their petioles or stalks are large, and these only are used. They are agreeably acid and vinous, very wholesome, and much admired, whether stewed alone with sugar, for tarts and puddings or pies, or combined with other fruits. Its

use with us is fast increasing, and although its introduction to the London market did not take place, it is said, till 1815, yet now, we are told, a thousand cartloads are there annually sold. Sow the seeds in September, an inch deep, in a rich, dry, deep, sandy loam, and they vegetate with certainty. In spring their vegetation is less sure. Water frequently, but very moderately, and shade from the scorching sun till their roots are strong. But the particular and finest named varieties are only raised by dividing the roots. Plant the roots in a rich, very deep soil, in rows four feet asunder, and three feet distance in the row. Young seedling plants only need to be protected the first winter by soil. Rhubarb may be forced very early, by being covered with boxes or barrels, surrounded by horse manure at the top and sides. The rhubarb is highly deserving of cultivation by every family.

72. SAGE. *Salvia officinalis*.

A perennial savory plant, extensively used as a seasoning for various meats. It is cultivated by division of the roots, or from the seeds sown in April or May. Before the plant blossoms, the tops are clipped and dried for use.

73. SAVORY. *Satureja*.

The *Summer savory* is an annual plant, from Italy. Its leaves have a warm and aromatic taste, and are used in seasoning meats, &c. Sow in April or May, and shade the ground till the plants have taken root. *Winter Savory* is a perennial, and is raised from seeds or from slips of roots.

74. SESAMUM ORIENTALE, or BENNE.

An annual herbaceous plant, rising to the height of two feet; the stalk four cornered; the leaves oval, oblong, opposite; the flowers in spikes, like the foxglove; the seed very small, like mustard; they are used like rice for food. Cultivated throughout Asia and Africa, and the West Indies, also in the Carolinas, for food, but more especially for the oil which is obtained from the seeds on expression. Nine pounds of seed, it is stated, yield two quarts of oil, perfectly sweet, and never becoming rancid. This oil is pleasant and equal to olive-oil for food. It is also used, mixed in the beautiful varnish of China and Japan. A plant of the easiest culture.

75. THYME. *Thymus vulgaris*.

A low growing savory plant. The tops, either green or dried, are boiled in soups and used as a seasoning for various meats and sauces. Sow the seeds in April, cover a quarter of an inch. There are two kinds, the *Common* and the *Lemon thyme*.

76. TOMATO. *Solanum lycopersicum*.

An annual; a trailing plant, a native of South America, and now most extensively used in Italy, where it is called *Pani d'Amore*, or *Love Apple*. The fruit which is produced in great abundance, is nine or ten inches in circumference, round, flattened; it resembles the capsicum or pepper. It is used in soups, and stewed it forms a fine sauce of a pleasant acid flavor. The fruit when ripe and red,

is cut in halves and squeezed sufficient to extract the water and seeds, and being put in a pan with a pepper or capsicum, and a small portion of beef gravy or butter, it is stewed over a slow fire for an hour; is afterwards rubbed through a sieve into a clean stew pan and simmered a few minutes, salt and pepper having been added. A superior and wholesome vegetable. The Tomato is reputed to be possessed of highly valuable medicinal virtues, and forms a most wholesome article of food. With sugar they form a very valuable preserve. It may be sown in April, in a hot-bed; or in May in a warm situation, and transplanted as soon as the season will admit. A middling soil produces more fruit and less vines than a very rich soil.

ORNAMENTAL FOREST TREES AND SHRUBS, CLIMBING PLANTS AND HONEYSUCKLES.

I will here briefly enumerate or describe a few of the most ornamental hardy trees, shrubs, &c. Those sorts particularly, which may be easily obtained, and at moderate prices. A just proportion of which are at this day considered indispensable appendages in every handsome garden.

The finest effect is produced where an extensive range of trees is formed in continuous clusters of each particular species; thus masses of Pine may be succeeded, but not too abruptly, by clusters of Larches and these being succeeded by Elms, Lindens or other trees. Outside every tree is allowed space, that thus they may preserve their lower limbs and fine forms entire.

In the disposition of trees and shrubs for avenues and the borders of walks, it is recommended to set them on either, or on both sides, in four ranks or ranges, according to their heights.

The first range, or that nearest to the avenue or walk, to consist of roses and shrubs of the lowest growth.

The second range to consist of shrubs, &c., which never attain to a greater height than from six to ten feet.

The third range, to consist of those trees which never attain to a very great height.

The fourth range, or outer rank, to consist of those trees only which attains to the greatest elevation.

A very broad and extended avenue, thus lined on both sides, with the ranks or ranges at proportionate distances asunder, and rising in regular gradation from the centre, as they will when fully grown, will present to the view of the beholder a spectacle the most striking and beautiful.

Those marked thus * are evergreens.

" " " † will admit of frequent repetition.

" " " ‡ being very handsome, will admit of very frequent repetition.

" " " S. S. require protection in winter, in northern climates.

CLASS I. — TREES OF THE TALLEST GROWTH, FOR THE
FOURTH OR OUTER RANGE.

‡ ASPELE OR SILVER LEAF. *Populus alba*.

A tree of rapid growth, rising to a great height; the leaves are cordate, pointed, of a very dark green above, perfectly white and woolly or downy beneath. The petioles are slender, and like the aspen are set in motion by every breath of wind; and the lively contrast of the upper and under surface gives the tree a striking appearance. It is raised from suckers.

‡ AILANTHUS OR TREE OF HEAVEN. *Ailanthus glandulosa*.

A tree from Japan or China, which there rises to an enormous height; with a slender and very straight trunk; the leaves are pinnate, and from three to four feet in length; the leaflets very numerous and beautiful. An elegant tree of extremely rapid growth. It answers well in the latitude of Boston. It is sometimes called *Tallou* or *Tillou*. It is raised from seeds and from suckers.

ASH. *Fraxinus excelsior*.

A fine stately tree, which rises to a height of sixty feet, with pinnate leaves. The timber is very strong and compact. Raised from seeds.

MANNA ASH. *F. rotundifolia*. This tree is from Calabria, it grows tall and stately, with pinnate leaves. Manna is procured from this variety. That which naturally exudes is called *tear manna*; but that which is obtained by incision, is called *canulated* or *slaky manna*.

† BEECH. *Fagus sylvestris*.

The *F. ferruginea* or AMERICAN BEECH is a tree of a tall and majestic form; the leaves oval, acuminate, serrate, shining; the fruit small, triangular; the kernel sweet; it affords an oil. The timber is fine. It is raised from seeds.

† BUTTON WOOD. *Platanus occidentalis*.

A tree which sometimes attains an enormous size. Its growth is very upright; its leaves very large, alternate, of a beautiful shining green and deeply lobed; the flowers are a globular ball, an inch in diameter. The bark is smooth, separating in scales; a noble tree. It is raised from seeds.

S. S. † CAMPHOR. *Laurus camphora*.

A native of Japan; a tree rising one hundred and fifty feet in height, which M. Michaux is persuaded will do well in Georgia. It may succeed in Florida. The leaves are oval, pointed; the flowers of a white color; the fruit deep purple. The wood of the tree and especially the root chopped small yields camphor by distillation in water.

‡ CATALPAS. *Bignonia catalpa*.

A native of America; a large tree with a round head; the leaves are very large and cordate; of a bright green. The flowers are in very large clusters of a white color touched with purple; they

appear in July, and are very showy and beautiful. Long cylindrical pods, a foot or more in length, inclose the seeds. The bark is tonic, stimulant and powerfully antiseptic. It is raised from seeds. The timber is very durable.

VIRGINIA CHERRY. See page 223.

†† **HORSE CHESTNUT.** *Esculus hippocastanum.*

A noble and extremely hardy tree, evidently from Northern Asia. It rises from fifty to sixty feet in elegant and compact proportion. The leaves are large, palmated, in five leaflets on a common petiole, of a dark green, and the tree forms an impervious shade; the blossoms appear in May or June, they are in large clusters, of a white color mottled with red, and of a superb appearance. The fruit is large, inclosed in a prickly hull. They are devoured by cattle; they produce fine starch. It is raised from seeds.

† **CYPRESS.**

We enumerate two varieties, 1st, *Deciduous Cypress*; (*Cupressus distichia*), a native of the Southern states where it grows to an enormous size, very erect and stately and bears the climate in the latitude of Boston. The foliage is light green and very delicate. 2d, *† *White Cedar*, (*Cupressus thyoides*) a tree which rises with a very straight trunk from seventy to eighty feet, the leaves are flattened and branching; a beautiful evergreen tree.

† **ELM, Ulmus.** *Scotch Elm, Wych Elm, Ulmus montana.*

The leaves are large, oval, acuminate, pointed, serrated. The tree grows erect, and sometimes attains an enormous size. The bark assumes a black cast. The timber is very valuable. *American Elm.* (*U. americana*.) The growth of this variety is very irregular—it attains a large size and height, and the branches droop like the willow. It rises sometimes to a hundred feet. *Red Elm. Slippery Elm.* (*Ulmus rubra*). Another handsome variety. The bark of the red elm is medicinal; it is highly nutritious, and is capable of sustaining human life. *Cork bark elm.* (*U. suberosa*) All these varieties are fine for avenues and lawns.

† **LIME OR LINDEN.** *Tilia.*

The European Linden rises in an elegant and pyramidal form; the American or bass wood has a round head. The leaves are large, alternate, round, obtusely pointed, cordate, serrated. The blossoms though not showy, have a sweet odor. Both varieties are of rapid growth, and form fine shades for streets and lawns. The wood is light, soft, and not liable to split. Raised from seeds and layers.

†* **HEMLOCK.** *Pinus canadensis. Weeping Spruce.*

An elegant tree, and neglected for no other reason than because it is so common. The foliage is very delicate. The tree rises from seventy to eighty feet. The bark is used in tanning leather. Raised from seeds.

† **LARCH.** *Pinus larix, Larix europea.*

Sometimes called *Scotch Larch*. This is a noble tree of a pyramidal form and larger and more valuable than the American variety. Its branches are disposed in stages, and grow in a horizontal direction; it is of extremely rapid growth, will flourish in almost any soil; and resists the severest cold; a beautiful tree while in leaf; its timber is valuable and of great durability.

† AMERICAN LARCH, or *Hæmatoc. Pinus microcarpa.*

This tree is of rapid growth, it attains to the height of eighty or one hundred feet. The tree is beautiful while in blossom and in leaf, and has a sweet odor. The timber is heavy, very strong and exceeding durable.

LOCUST. *Robinia pseudo acacia.*

A tall, beautiful tree, of very rapid growth, with pinnate leaves; the flowers are produced in racemes; they are white, and have a sweet fragrant odor. This tree, so valuable for its timber, is liable to the destructive attacks of a worm and throwing up innumerable suckers from its roots.

† HONEY LOCUST or TREE THORNED ACACIA. *Gleditschia tri-acanthos.*

A tree of rapid growth, which attains a stately size. The foliage is beautiful; the leaves are pinnate; they close at night; the seed pods are a foot or more in length. The tree is armed with triple or branching thorns, sometimes a foot long, of formidable appearance. A hedge properly trained, would soon be impassable to man or beast. The stems should be allowed to rise six feet in height, when they must be checked in their advancement to force out lateral shoots.

†† MAGNOLIA, BLUE FLOWERING. *M. acuminata.*

This tree is very hardy. It rises erect and in beautiful form to a great height in a congenial climate. The leaves are handsome. the flowers are of a blue color.

† SCARLET MAPLE. *Acer rubrum.*

A large tree of a very handsome form, the leaves are cordate, lobed, dentate, downy beneath. The blossoms appear early in April; they are of a rich crimson hue. The leaves in autumn change to beautiful deep crimson.

SUGAR MAPLE. *Acer saccharinum.*

A tree of medium height; the leaves are large, three or five lobed; from its sap sugar is produced; a tree of utility and ornament.

*† WHITE PINE. *Pinus strobus* or *Weymouth Pine.*

A beautiful evergreen tree, which has been termed the Palm tree of the north. It rises with a straight trunk to an enormous height. Mention is made in Cox's travels, of a tree at the mouth of the Columbia river fortysix feet in circumference, one hundred and fifty feet to the lowest branches and three hundred feet high, there called by the traders *Roi des Pins*. The leaves are very delicate and beautiful. The timber extremely valuable.

* PINUS LAMBERTIANA.

A splendid genus of the Pine, discovered by Douglas in the North of California. One specimen seen, measured two hundred and fifteen feet in height and fiftyseven in circumference. The cones measure sixteen inches in length.

Pinus Douglassi — *Pinus grandis* and *Pinus monteola* are described as immense and beautiful trees found growing on the North-west coast of America.

*†† SILVER FIR. *Fir Balsam, Balm of Gilead. Pinus balsamea.*

A native of the northern parts of America. An evergreen tree of a tall and elegant appearance: the leaves are of dark green above and of a silvery hue beneath; a tree much admired for the beauty of its form and foliage.

*† SPRUCE. *Pinus.*

The *Black Spruce, P. nigra*, and the *Red Spruce, P. rubra*, *Norway Spruce, P. abies*, are all ornamental varieties and deserving a place in every large garden. The branches of most of those varieties incline to grow horizontally.

†† SYCAMORE. *Acer pseudo-platanus.*

The tree grows tall and of elegant form; the leaves are very large, broad, of a dark green hue. A tree of ornament. 2d, *striped leaved Sycamore. A. fol. var.* A variety with beautiful striped leaves.

†† TULIP TREE. *Liriodendron tulipifera.*

A very majestic tree which rises with a straight trunk to the height of eighty or an hundred feet. The leaves are large, of a singular form of a bright green. The flowers appear in June and much resemble the Tulip, of a greenish yellow, touched with red.

†† WEeping WILLOW. *Salix babylonica.* PARASOL.

A well known tree, rising to the height of forty or fifty feet; its branches drooping; one of the most elegant of all shade trees. Its outline when standing insulated is pleasing and very striking. The *Napoleon Weeping Willow* is the same, but is raised from the branches brought by Capt. Jacob Smith of Rhode Island from the tomb of Napoleon at St Helena. 2d, *Golden Willow, S. vitellina*, a variety of a gold color which attains a stately size.

CLASS II. — TREES OF SECONDARY HEIGHT, FOR THE
THIRD RANGE.

† ACACIA, PURPLE FLOWERING. *Robinia viscosa.*

A tree which never grows tall, the young wood is glutinous and the flowers are of a purple color and in large racemes.

† LARGE DOUBLE FLOWERING ALMOND. See page 196.

APPLE.

† CHINESE DOUBLE FLOWERING. See page 76.

† RED SIBERIAN CRAB. See 75.

† YELLOW SIBERIAN CRAB. See page 75.

† CURLED LEAVED ASH. *F. atrovirens.*

A very curious and striking variety, a most singular tree. The growth is very upright; the young wood very thick and blunt;

the leaves curled; of the darkest green shade. 6. *Golden Ash* (*F. aurea*.) The bark of this singular variety is of a gold color.

CHINESE ASH. *Fraxinus sinensis*.

An ornamental and singular variety; the leaves are small and very narrow, of a dark green shade.

† **WEeping ASH.** *F. pendula*.

A variety with pendant branches; and very ornamental.

‡ **PURPLE BEECH.** *F. purpurea*.

A tree remarkable for its leaves, which are of a dark crimson or purple hue, which appear to most advantage in June or July. In autumn they fade to purplish green.

‡ **MOUNTAIN ASH.** *Sorbus aucuparia* or *Roan tree*.

A tree rising in an elegant and pyramidal form to the height of thirty feet. The tree itself is an ornament and its flowers which are in large clusters. In autumn the tree is covered with large clusters of red berries, and its appearance at this time is very striking and beautiful.

S. S. ‡ **CABBAGE TREE.** *Chamærops palmetto*.

A superb tree, growing on the shores of the ocean from Cape Hatteras to the Gulf of Mexico. It rises with a straight trunk to the height of forty or fifty feet, but never branches. Its regular summit is crowned with tufts of palmated leaves of a shining green; their footstalks 20 inches long; the undeveloped leaf is folded like a fan, and opens five feet in diameter. The fruit is a small berry and in clusters. The wood is spongy, and has therefore been used in the construction of forts. It resists the sea-worm.

S. S. ‡ **CARICA PAPAYA.**

A beautiful evergreen, which Mr Bartram pronounces the most graceful and elegant production known. It grows only in the southern parts of the Union. It rises 15 or 20 feet, but never or but seldom branches. Its trunk is straight, smooth, of a bright ash color, and polished like leaf-silver. Its top is spherical and formed of very large lobe-sinuate leaves, supported on very long footstalks. The fruit, like figs, comes out singly and in the axils of the leaves, and in continual succession. The tree is in continual flower.

* **RED CEDAR.** *Juniperus Virginiana*.

Or *Black Cypress*. A dark evergreen tree, of conical form. The wood is extremely durable and has a fine odor. Hedges formed of this material, by clipping become remarkably compact.

† **DOUBLE FLOWERING CHERRY.** See page 222.

‡ **CHIONANTHUS.** *C. Virginiana*.

SNOW DROP OR FRINGE TREE.

A low growing tree with numerous branches; the leaves are large, oblong, entire, nearly opposite; the flowers are in long bunches, of pure white resembling flakes of snow, or cut in narrow segments like fringes; the berries are black; they contain an oblong hard seed. An elegant tree.

S. S. ‡ **FRANKLINIA.** *Gordonia pubescens*.

A tree growing from six feet to thirty feet in a congenial climate.

Universally admired for its large and beautiful white flowers, with a yellow centre and of extraordinary fragrance.

HERCULES' CLUB. *Angelica tree. Aralia spinosa.*

A tree of low growth, of a singular aspect, the limbs are covered with stiff thorns. The flowers are in large bunches, and last a long time.

JUDAS TREE. *Cercis siliquastrum.*

A low tree, which produces its flowers very early, before the appearance of the leaf; it is at that time an ornamental variety.

KENTUCKY COFFEE TREE OR BONDOC. *Gymnocladus canadensis.*

A singular tree in its appearance; the young wood is remarkably stout and thick; the berries are said to be used as coffee.

††**LABURNUM.** *Cytissus laburnum, or Golden Chain.*

An elegant small tree, producing a profusion of long bunches of yellow flowers. There are two varieties, the common and the ALPINE or SCOTCH; the latter is the most beautiful and is believed to be the hardest.

††**MAGNOLIA.**

Of this splendid tree there are many varieties.

1st. *Chinese Purple Flowering. (Magnolia obovata),* with flowers of a fine violet purple outside, and white within.

††2d. *The Chandelier Magnolia, or Yulan. (Magnolia conspicua.)* Another Chinese variety with large elegant white flowers, shaped like a Chandelier.

††3d. *The Magnolia cordata, or Yellow Twice Flowering.* The flowers of this variety are yellow; it does not grow large.

††4th. *Magnolia glauca;* for description see third section.

††5th. *Splendid Magnolia macrophylla, large leaved.* The leaves of this variety are over two feet in length. The blossoms very large, and of a yellowish white, very beautiful with a fine odor.

††*Magnolia purpurea.* Highly spoken of by Mr Loudon.

††*Magnolia tripetala. (Umbrella Tree.)* A tree which rises to a very moderate height, with very large leaves, and very large single flowers four inches in diameter, of a white color and fragrant odor.

S. S. *††*Great Flowering Magnolia. (M. grandiflora.)* A tall, superb evergreen tree, rising in a congenial climate to the height of sixty or eighty feet; the leaves are oblong, of a shining green. The flowers are very large, of a fine fragrant odor. It does not bear a northern climate.

††**MOUNTAIN SNOW DROP.** *Chionanthus montana.*

The tree rises from ten to twelve feet in height; the leaves are oblong, broad, laurel shaped, of a blackish green; the flowers are in clusters, very singular and white, like flakes of snow. Last of May and June.

†**CHINESE PAPER MULBERRY.** *Brousonetia papyrifera.*

A large tree with a round head; the leaves are large, rough, some are cordate, some entire, some five lobed. The fertile and barren

blossoms are produced on different trees. The tree is of rapid growth and ornamental.

††CHINESE MULBERRY. *Morus multicaulis*. See page 227.

A beautiful tree of rapid and upright growth; leaves very large and cordate; the upper surface is curled or convex, of a deep shining green.

††OSAGE ORANGE. *Maclura aurantiaca*. *Bow-wood*.

A native of the Arkansas and Missouri, where it rises in beautiful proportion to the height of sixty feet, and has been pronounced one of the most beautiful of our native trees. The leaves are oval and lanceolate, of a bright shining green; they resemble those of the orange, and the branches, like those of the orange, are covered with long thorns. The fruit is nearly as large as an ostrich's egg, of a golden color, and the trees when laden with fruit appear splendid, but the fruit is not eatable. The wood, according to Mr Sevier, Member of Congress for Arkansas, is perhaps the most durable in the world, and for ship building esteemed preferable to live oak; it is valuable for furniture, as it receives the finest polish, and yields a fine yellow dye. It is remarkably tough, strong and elastic, and preferred by the Indians to all other wood for bows. It deserves trial for hedges. I know of no wood so beautiful for this purpose, and yet so hardy.

*†PINUS CEMBRO. *Bon Jard*.

A medium sized tree, of a beautiful form, with a straight trunk; the leaves are very long like those of the *Pinus strobus*; they grow in fives; the cones are roundish, the size of an egg; they contain large seeds which are eatable and good. The wood of this tree exudes a powerful and pleasant odor. At the Chateau of Tarasp, in Switzerland, every apartment is wainscoted with the wood of the *Pinus cembro*, and various articles of the furniture are formed of this wood, and although the wainscoting is now some centuries old, it still exudes with undiminished strength an odorous perfume.—*Bull. Univ. (Loud. Mag.)*

PEACH. †*Double Flowering Peach*. Highly ornamental when in bloom.

††*Weeping Peach*. See page 182.

††S. S. PRIDE OF INDIA. *Melia azedarach*.

A tree from India or China of very rapid growth, much used in the southern cities for ornamenting streets. The leaves are pinnate, of a deep shining green, and beautiful; the flowers are in large oblong clusters, of a bluish white or lilac, and of a fragrant odor.

†SHEPARDIA or *Buffalo Berry Tree*. See page 322.

†*SWEDISH JUNIPER. *Juniperus suecica*.

A hardy tree, which does not rise to a very great height. Its appearance is very singular when trained in a narrow pyramidal form by tying in the branches.

BLACK WILLOW. *Salix nigra*.

A low tree; the young wood of this variety is of a shining deep violet or black, and covered with a pale blue glaucous bloom.

†RING WILLOW. *Salix annularis*.

A very curious and singular tree; the leaves are curled in the form of a ring or hoop. Also called *Hoop Willow*.

††VENETIAN SUMAC. *Rhus cotinus*. *Smoke tree*. *Purple Fringe Tree*. *Aaron's Beard*. *Jupiter's Beard*.

An elegant shrub or tree, rising from six to twenty feet, with a round head; the leaves are round, and have the odor of citron. The flowers are very striking, and have a beautiful appearance; they appear in June, are in large tufts of a purple color. In September and October they change and appear like masses of wool. One of the most beautiful shrubs; its appearance is very conspicuous and superb.

S. S. ††WILD ORANGE. *Cerasus Carolinianq.*

A beautiful evergreen tree, of rapid growth, found growing on the coasts of the Carolinas, Georgia, and Florida, rising to the height of from thirty to forty feet. The leaves are three inches long, oval, acuminate, smooth and shining above, and the tree affords an impenetrable shade. The flowers are small and numerous; the fruit nearly black; the pulp, which is not eatable, incloses a soft stone.

CLASS III. — TREES OF LOW GROWTH, OR SHRUBS, VARIETIES WHICH SELDOM ATTAIN TO A GREATER HEIGHT THAN FROM SIX TO TEN FEET, FOR THE SECOND RANGE.

†ROSE ACACIA. *Robina hispida*.

A low growing shrub, which produces a succession of large clusters of pale blue or purple flowers.

††ALTHEA. *Hibiscus syriacus*. *f. pleno*. *Althea frutex*.

A native of Asia, but bears the winters of Boston perfectly well. One of the most ornamental of all shrubs, rising to the height of from six to twenty feet. The leaves are three lobed. The chief varieties of the Double Althea are the *Double Blue*, *Double Purple*, *Double Red*, *Double White Striped* or *Pheasant Eyed*, and *Double White*, &c. &c. This last does not flower well in the latitude of Boston. The Altheas commence flowering not long after the hardy roses are gone and continue blooming till late in autumn. They are indispensable in every good garden.

††AZALEA.

This variety of honeysuckle is much admired. The pink and the white are the most common, and are natives of our woods; they are extremely beautiful when in bloom. The varieties known in cultivation may exceed a hundred.

CALYCANTHUS. *C. floridus*. *Alspice*, or *sweet scented shrub*.

A hardy shrub, rising six or eight feet in height, the flowers are of a brown purple, of an agreeable odor like spices. The leaves are very fragrant.

†CHINESE CALYCANTHUS.

A variety with white flowers; there is another Chinese variety with yellow flowers.

†WEeping CHERRY. See page 223.

†COLUTEA.

Of this shrub there are the *Colutea arborescens*, with clusters of yellow flowers during summer — and seed in a thin inflated membranous case; also the *C. Pococki*, with dark yellow flowers. Both are ornamental.

MISSOURI, or JEFFERSON CURRANT. *Ribes missouriensis*.

A shrub rising to the height of six feet, with clusters of bright yellow flowers, of a fragrant odor in spring.

INDIAN CURRANT. *Symphoria glomerata*.

A low shrub; the leaves are very small, oval. The fruit, for which alone it is remarkable, is profusely clustered on the branches, and of a red color, but not eatable.

DIRCA PALUSTRIS.

Leather Wood, so called from the uncommon flexibility of the tree and its branches. It rises from four to six feet in form of a tree; the flowers are yellowish white, the leaves are oval.

BLOODY DOGWOOD. *Cornus sanguinea*. *Red twigged Dogwood*.

The flowers are produced in clusters, but neither these nor the leaves are very striking. In winter the wood assumes a beautiful crimson color, and is in that season much admired.

WHITE FLOWERING DOGWOOD. *Cornus alba*.

A shrub not very uncommon in our woods, producing a profusion of blossoms of a dull white, resembling the single rose.

†ENGLISH FLY HONEYSUCKLE. *Lonicera xylosteum*.

A small tree or shrub, rising to the height of seven or ten feet; the leaves are dark green above, downy beneath. The flowers small, of a straw color, but not very conspicuous. The berries are bright red — the shrub is considered ornamental. The flowers appear in June and July.

†TARTAREAN HONEYSUCKLE. *Lonicera tartarica*.

A shrub rising from four to ten feet in height. The flowers are small, of a pale red color, and appear early in April. This shrub is much esteemed.

†DWARF FLOWERING HORSE CHESNUT. *Esculus macrostachia*.

A native of America. It rises to the height of five or six feet, producing large spikes of beautiful white flowers of a fine odor and elegant appearance.

S. S. †HALESIA. *Snow Drop Tree*, or *Silver bell*.

There are two varieties of this tree, the *H. diptera*, and *H. tetraptera*. The former the two winged, the latter the four winged — the blossoms are pendant, and of a pure white.

†HAWTHORN. *Crataegus oxyacanthus*.

A tree of medium size. There are several varieties which are

very ornamental when in bloom. These are the *Double White* and the *Scarlet*. This plant is much used in Europe for hedges, but is not so well calculated for our hot summers.

†INDIGO SHRUB. *Amorpha fruticosa*.

This produces spikes of blue flowers in great abundance of handsome appearance.

†LILAC. *Syringa vulgaris*.

A beautiful shrub, rising from six to eight feet in height; it flowers in large clusters in April and May, of a fragrant odor. There are two varieties; one with flowers of a *bluish violet*; the other those of *pure white*.

†PERSIAN LILAC. *S. persica*.

This shrub rises six or seven feet in height. The leaves are pointed, and of less size than the common Lilac. The flowers are smaller and more delicate. There are several varieties. 1st, *Purple Persian L.*; 2d, *White Persian L.*; 3d, *Cut-leaved* or *Chinese L.*, with curious leaves.

†MAGNOLIA GLAUCA. *Glaucous magnolia*.

A low tree or shrub with oblong glaucous leaves, and beautiful white flowers of a fragrant odor. The plant is very hardy and flourishes best in a mixture of bog earth and common soil.

*†MOUNTAIN LAUREL. *Broad leaved Kalmia*. *Kalmia latifolia*.

A superb evergreen shrub, very hardy; a native of the Northern States of America. It rises five or six feet; the leaves are oblong and shining; the flowers are in large convex clusters, of a rose or carnation hue, and appear in June or July.

MOUNTAIN ROSE, or RASPBERRY. *Rubus odoratus*.

A low shrub, remarkable for its large green leaves, and a succession of blue flowers like small single roses. There is a variety with large white flowers.

S. S. *†PALMETTO ROYAL, or BAYONET BUSH.

A very singular production. It rises several feet, with a stiff, ligneous stem; the summit is crowned with leaves in a cluster, of a dark green color with crenated edges; they are very stiff, dagger or sword shaped, and sharp pointed; and they form hedges impenetrable to man or beast, at Savannah and St Augustine. The flowers are white, tulip formed; they crown the summit in a pyramid. The fruit like a cucumber in size and form, the skin smooth and shining, of a deep purple color; the pulp soft, juicy, agreeable, aromatic, and somewhat bitter.

S. S. †POMEGRANATE. See former page.

†PRIM, or PRIVET. *Ligustrum vulgare*.

A sub-evergreen, rising eight or ten feet; the leaves are lanceolate, of a very dark green like the myrtle; the flowers are white; the berries black, in large clusters. This plant forms a beautiful hedge. †2d. *Variegated Leaved Privet*. (*L. variegatum*.) The leaves of this variety late in autumn are blotched with a bright gold color. 3d. †*Chinese Privet*. (*L. sinensis*.) A variety with leaves of the same dark green as the preceding, but of much larger size.

††JAPAN QUINCE. *Cydonia japonica*, or *Pyrus japonica*. Japan Pear. See page 163.

†CHINESE QUINCE. See page 163.

*†RHODODENDRON MAXIMUM. ROSE BAY. *Great Rhododendron*.

An evergreen shrub, a native of America. It rises from six to sixteen feet in height, with numerous branches. The leaves are large, oblong, and thick; of a dark shining green, and beautiful. In July the flowers appear in large convex clusters, at the end of the shoots, of a reddish hue; they are extremely beautiful and last a long time. A moist soil is the most suitable. A very hardy variety.

*†RHODODENDRON PONTICUM, or PONTIC ROSE BAY.

A beautiful variety of foreign origin. The leaves are large, shining and beautiful. The flowers appear in midsummer, on the ends of the shoots, in large clusters, and are of a violet or purple color. A very beautiful shrub. A moist, sandy soil suits it best. This variety is believed not so hardy as the former species.

††SNOW-BALL, or *Guelder Rose*. *Viburnum opulus*.

An elegant shrub, blooming very early and profusely in spring, in large, round, white clusters, like balls of snow.

JAPAN SOPHORA. *Sophora japonica*.

A tree rising with a straight trunk, to a great height, in congenial climates. The branches are pendant; the flowers in clusters, of a dull white. It was for a long time known that this tree produced the Japan Imperial yellow dye; but the bark, leaves, and wood failed of producing it. But it is lately discovered to be produced from its fruit.

SPIRÆA.

Of the Spiræas, there are several varieties; they are all ornamental. We enumerate

1. GUELDER ROSE SPIRÆA. *Spiræa opulifolia*, or *Nine bark*. A shrub rising six or eight feet, with large round clusters of white flowers in spring.

†2. SIBERIAN SPIRÆA. *S. lavigata*. A shrub rising five or six feet high, producing beautiful spikes of white flowers in spring.

3. RED FLOWERING. *S. tomentosa*. Produces handsome red spikes of flowers, and is neglected only because it is so common.

†4. NEPAL. *S. bella*. Produces elegant red flowers.

†STRAWBERRY TREE. *Euonymus*.

Of this tree or shrub there are several varieties. In autumn the trees are covered with a profusion of red berries, and are then deemed very ornamental.

SYRINGA. *Philadelphus coronaris*.

A very ornamental shrub, producing a profusion of white flowers very early in spring, of a sweet fragrance. The *variegated leaved* is a curious species.

†CAROLINA LARGE FLOWERING SYRINGA. *Philadelphus grandiflorus*, or *Garland Syringa*. Very hardy; the flowers are in garlands, and continue a long time.

CLASS IV. — SHRUBS OF LOW GROWTH. VARIETIES WHICH SELDOM RISE BUT FROM TWO TO FIVE FEET, FOR THE FIRST OR INNER RANGE.

††DWARF DOUBLE FLOWERING ALMOND. *Amygdalus nana*.

A superb shrub, flowering early in spring, in profuse clusters of very double blossoms, like small roses, of a rose or pink color; one of the most ornamental shrubs of its season. See page 196.

YELLOW DIERVILLA. *Diervilla lutea* or *Arcadian honeysuckle*.

A low growing, hardy, ornamental shrub. The wood is perfumed when broken; the flowers are small, of a yellow color, and slightly fragrant.

S. S. ††CAMELLIA JAPONICA, OR JAPAN ROSE.

A beautiful evergreen tree, producing flowers like roses, of various shades, extraordinary beauty and fragrance. It requires effectual protection in the Northern and Middle States. It flowers in winter.

††CORCHORUS JAPONICUS. *Keria japonica*. *Japan globe flower*.

An elegant shrub from Japan, rising with many flexible stalks, to the height of five or six feet. The flowers, which are produced in succession from spring to autumn, are very double, and of a globular form, and bright yellow color. This plant is strikingly beautiful. It bears the winters well in the latitude of Boston, with a very slight covering of straw or leaves, but generally without any protection whatever.

††DAPHNE MEZEREON.

A low shrub, rising from two to three feet in height, with small lanceolate leaves. In March the whole plant is decorated with flowers of a violet or white hue, and beautiful appearance. An elegant shrub.

††WHITE FLOWERING MEZEREON is beautiful, but taller than the red.

††PÆONIA.

The *Tree Pæonias* are as hardy as oaks. The flowers are of large size and splendid in appearance. They are from China.

ST JOHN'S WORT. *Hypericum*.

Of these there are several varieties; the *H. frutescens* is a low shrub which produces in summer a profusion of flowers of a yellow color.

††SCOTCH BROOM. *Spartium scoparium*.

A singular shrub, rising in many flexible stalks like a broom; the flowers are yellow and very showy; the appearance of this shrub is striking. *Siberian broom*, a low trailing shrub, producing a succession of small yellow flowers.

††SNOWBERRY. *Symphoria racemosa*.

A very hardy shrub from the Rocky Mountains. The berries, which are of the size of a cranberry, are in clusters, and are very white and delicate, like wax, and very ornamental.

††ROSE. *Rosa*.

The rose is justly called the queen of flowers, for its size and various beautiful shades and delightful fragrance. The colors vary from a pure white to red, to deep violet, and nearly to black. The yellow rose is not very uncommon. The rose is an indispensable requisite in every good garden. The lists enumerate at least one thousand names of hardy roses.

S. S. ††CHINA ROSES.

These require a little protection during winter, in the northern States. They are mostly ever-blooming, and universally admired on this account. They should be planted in the open ground in June, and may be again taken up in September; or protected with moss or evergreens, and suffered to remain out all winter. The most common are the *China Blush* and *Sanguinea*. The *Champney's Blush Cluster*, and *Noisette*; of these last there are many varieties, all blooming in superb clusters. Others, less common, are the *Knight's Resplendant*, the *Grandval* or *Hermite*, more splendid still; but both these last are of a dark crimson hue. The *Blush Tea Scented* of exquisite fragrance, and the *Undulata*. The *Multiflorus*, *Blush*, and *White*, and the *Lady Banks' White* and *Yellow*, and the *Grevilli* are all running roses, and blossom in beautiful clusters; but they do not blossom well except in a warm exposition. The *Belle de Monza*, the *Yellow Tea Scented* and *Yellow Noisette* are not common but celebrated new kinds. There are many kinds not less beautiful, perhaps, but still less known.

CLASS V. — HONEYSUCKLES AND CLIMBING PLANTS.

ARISTOLOCHIA SIPHO.

A rapid growing vine, with very large leaves, which are round, cordate, entire, of a bright green; the flowers, which appear in June and July, are of an obscure purple, and of curious form, resembling a pipe. Admirably calculated for arbors from the large size of the leaf.

††BIGNONIA RADICANS or *Trumpet flower*.

A rapid growing plant, a native of America, which extends its branches to a great distance; the foliage of a fine green and numerous; from every joint roots are emitted, which attach themselves to

the earth and walls and structures of wood. The flowers are in clusters, each flower about four inches in length, in form of a trumpet, of a beautiful flame color.

There is a variety called the *Minor*.

‡‡BIGNONIA GRANDIFLORA.

A variety from China, but not so rapid in its growth; a fine climber. The flowers are large, and more in the form of a bell than trumpet, and of a fine flame color. Both are very showy and beautiful.

‡‡CHINESE GLYCINE. *Glycine sinensis* or *Wistaria consequana*.

A beautiful vine of rapid and very extended growth; the flowers are very numerous, in long clusters or racemes of a purple color. This plant is from China, and is highly spoken of by Mr Loudon.

‡‡CLUSTER FLOWERING GLYCINE. *Glycine frutescens*.

This appears to be of more vigorous growth than the Chinese, in our climate. A very rapid growing vine. The flowers of a deep purple color, and in long clusters, or racemes, of a beautiful appearance. A native of the Southern States, but hardy.

‡‡IVY, EVERGREEN, or IRISH BROAD LEAVED GIANT IVY. *Hedera helix*.

This perhaps is one of the most beautiful of all plants for covering arbors and walls. I suspect, however, our summers are too warm for it. On the north sides of buildings alone, I have observed, it flourishes in unfading beauty.

‡VIRGINIA IVY, or *American Ivy*. *Cissus hederacea*.

A remarkably rapid growing vine, and eminently calculated for covering walls, &c. The leaves are large and palmated, changing in autumn to a fine crimson. This ivy is deciduous.

‡ROSA RUBIFOLIA, or *Raspberry leaved Rose*.

This is the handsomest and finest of all the hardy running roses yet known. Its growth is very rapid and strong. When well established, it will run near twenty feet in a season; and although the flowers are small and perfectly single, yet they are in superb clusters like the Noisettes, and of different shades on the same bunch. A native of the west. The Ayrshire cannot compare with it. This rose flowers in July, after most other hardy roses are gone; and may, perhaps, like the *Cherokee*, form a fine hedge.

*S. S. GREVILLI, very rapid growing; flowers in fine clusters of different shades.

*S. S. BLUSH MULTIFLORA. Rapid growing; flowers in superb clusters.

*S. S. WHITE MULTIFLORA. *M. Alba*. Superb white clusters of roses; beautiful.

*S. S. LADY BANKS'S. Two varieties, the white and the yellow; both very beautiful, flowering in clusters.

*S. S. CHEROKEE. Not remarkable for the beauty of its flowers; of very rapid growth; used in Carolina for hedges.

BOURSAULT. *Mahoea*. A beautiful climbing rose, producing flowers in profuse clusters of a deep red dye.

VIRGIN'S BOWER. *Clematis*.

Of this plant there are several varieties, some are hardy and some are tender. The *Traveller's Joy* (*C. vitalba*), is one of the most hardy and rapid growing varieties. *C. viorna*, *C. viticella*, and *C. flammula*.

HONEYSUCKLES. *Lonicera*. *Twining Honeysuckles*.

†**EARLY WHITE ITALIAN.** *Lonicera caprifolium*.

The flowers of this variety are white, and of a very delicate appearance; they appear very early, but their duration is short; the vine is of very rapid growth.

‡**EARLY VARIEGATED BELGIC.**

A variety similar to the monthly, variegated in its blossoms, but it differs from that in flowering but once, very early and profusely.

‡**CHINESE VARIEGATED MONTHLY, or Chinese Twining.** *Lonicera flexuosa sinensis*.

This beautiful honeysuckle is from China, and like many other productions of that country, it appears to be perfectly hardy. The vines are very flexible, and of rapid and very extended growth; it rises to a very great height; the flowers are in pairs, or triple, covering the plant in profusion, from spring to autumn; they are beautifully variegated with red, white and yellow.

‡**VARIEGATED MONTHLY HONEYSUCKLE, or Belgic.** *Lonicera Belgicum*.

One of the most beautiful of all varieties; the flowers last from spring till late in autumn, the colors are variegated with white and yellow and red; they are very fragrant.

‡**SCARLET TRUMPET MONTHLY, or Coral.** *Lonicera sempervirens*.

Almost an evergreen; one of the most rapid growing of all. The flowers are of a fine scarlet, in form of a trumpet, and are produced in profusion from spring till winter, the foliage is large and beautiful, of a dark shining green. A native.

‡**YELLOW MONTHLY TRUMPET.** *Lonicera frazeri*.

The foliage of this is of a bright green. The flowers differ from the Scarlet Trumpet only in being of a bright yellow color; like that, it is a native of America.

‡**ORANGE PUBESCENT.** *Lonicera pubescens*.

This is a native of the north western coast of America. The leaves are downy; the flowers are large, and of an orange color.

S.S. ‡JAPAN HONEYSUCKLE. *Lonicera japonica*.

The flowers of this variety are produced in profusion, of a pale yellow color. It is highly spoken of by Mr Loudon, but it does not withstand our winters without protection.

There are many other varieties. The *Douglasi*, a native of America, has very large foliage.

‡**ETRUSCAN or TUSCANY, ORANGE COLORED.** *L. etrusca*.

A new and beautiful variety, with flowers of an orange color.

FLOWERS.

THE lists of flowers recommended by most authors, are much too extensive for general purposes. I have made choice of the list recommended by Mr Neill, (Ed. Ency. vol. x. part 2, on Horticulture) as the foundation, and from this I have taken some, and added more. It includes the most showy and conspicuous varieties known.

1. FLORISTS' FLOWERS.

These flowers are in a peculiar manner distinguished by the title of *Florists' flowers*. They are cultivated in beds by themselves: the principal are these, 1. the Tulip; 2. the Ranunculus; 3. the Anemone; 4. the Iris; 5. the Dahlia; 6. the Pink; 7. the Carnation; 8. Polyanthus; 9. Auricula; 10. Hyacinth; 11. Polyanthus Narcissus, and 12. the Crocus.

2. PERENNIALS.

Tall growing showy flowers, to intermix in the shrubbery border.

For the shrubbery border, the following are recommended as the most suitable tall growing herbaceous plants: 1. Hollyhock, *Althæa rosea*, of different colors, September till hard frosts; 2. Goat's Beard *Spiræa*, *S. aruncus*; 3. Foxglove, *Digitalis*, Biennial; 4. Monkshood, with blue and yellow flowers, *Aconitum*; 5. Larkspur, *Delphinium grandiflorum* and *exaltatum*, and *D. sinensis*; 6. Columbine, *Aquilegia vulgaris*; 7. Iris, of the large species, *Germanica*, *sambucina*, and *siberica*; 8. Willow herb, *Epilobium angustifolium*; 9. Double Feverfew, *Pyrethrum parthenium*, are showy in flower; 10. Tall species of Asters, *A. puniceus*, *multiflora* and *linarifolia*, with blue and white flowers; 11. Tall species of Solidago; 12. Perennial Sunflowers, particularly *Helianthus decapetelus* and *H. multiflorus*; to these may be added, 13. *Rudbeckia laciniata*; 14. I add to this list the Tiger Lily, *Lilium tigrinum*. Besides tall plants, some of humbler growth may be added, as patches of 15. Sweet Woodruff, *Asperula odorata*, and patches of 16. Double Wood Anemone, *Anemone nemorosa*, and 17. the Lily of the Valley, *Convallaria majalis*; there is a double red flowered variety of this: also the *Yucca filamentosa*.

BORDER FLOWERS.

The borders for perennial flowers are seldom less than four or five feet in breadth. One of the most ornamental tall growing perennials is 1. Double Scarlet Lychnis, *Lychnis chalcidonica*, fl. pl.; 2. Hyssop leaved Dragon's head, *Dracocephalum ruschiana*, and the Great Flowered, *D. grandiflorum*, with elegant blue flowers, and *D. denticulatum*; 3. Silver-rod, or Branched Asphodel, *Asphodelus ramosus*, with fine white flowers; 4. *Verbascum ferrugineum*, Rusty Flowered, and *V. phæniceum*, or Purple Flowered, may be admitted; together with 5. the Fine Branched Lythrum, *L. virgatum*, which is covered, for three months with purple flowers; 6. two or three species of *Centaurea*, such as *C. orientalis*, with yellow flowers, and *C. Caucasica*, with white flowers, and *C. montana*, with blue flowers; all hardy perennials; 7. Double Siberian Larkspur, *Delphinium*

elatum, flowers fine dark azure, and *D. sinensis*, elegant deep blue; 8. *Phlox pyramidalis* and *P. paniculata*, *P. suaveolens*, *P. Shepardi*, and *P. tardiflora*, are handsome, showy flowers; 9. Linear Leaved Willow herb, *Epilobium angustissimum*, and *spicatum*, foliage fine, and flowers large, of a beautiful purplish red; 10. *Coreopsis verticillata* and *C. lanceolata*, flowers fine deep yellow; 11. Of the species of Speedwell, these are elegant, *Veronica virginiana*, flowers bluish colored, and with white flowers; and *V. longifolia*, flowers blue, white, or flesh colored; 12. Variegated Wolfsbane, *Aconitum variegatum*; 13. *Rudbeckia purpurea*, with large flowers; 14. *Liatris spicata* deserves a place in every collection; 15. *Acanthus mollis*; 16. Of the fine genus *Spiræa*, the Queen of the Meadow, *S. ulmaria*, and Dropwort, or *S. filipendula*; 17. Of *Campanula*, or Bell Flower, a hundred species have been named; there are several showy perennials, as Peach leaved, *C. persicifolia*, with single blue, and single white, and with double flowers; Nettle leaved Bell Flower, *C. trachelium*; Pyramidal, or *C. pyramidalis*, highly prized. Light Loosestrife, *Lysimachus erecta*, with showy yellow flowers, may be added. The Dahlia is a noble plant, a native of Mexico. A plant but lately known amongst us, rising from three to ten feet in height. It flowers profusely in autumn, after the hardy roses are past, and continues in flower till hard frosts commence. The flowers are magnificent; they are of a great variety of shades, and surpass those of the rose and camellia in size and splendor, although they fall short in fragrance. Its roots are large, oblong tubers.

ORNAMENTAL PLANTS OF MIDDLING SIZE.

1. Of the species of Achillea; Sweet Maudlin, *A. ageratum*, Sneezewort, *A. ptarmica*, with double flowers; 2. Spring Adonis, *A. vernalis*, with large yellow flowers, in April; 3. An elegant double variety of Rose Campion, *Agrostemma coronaria*; 4. Perennial flax, *Linum perenne*; 5. Round headed Rampion, *Phyteuma orbicularis*; 6. Sweet William, *Dianthus barbatus*; 7. Of the species of Eryngium, *E. alpinum* and *E. amethystinum* are very ornamental. Also, the *Statice* or Thrift, in particular, *S. latifolia*, *scoparia*, *tartarica* and *speciosa*; 8. Fraxinella, or *Dictamnus albus*, is both beautiful and curious; by approaching a candle to the flower, in a warm, dry and clear night in June, a slight explosion takes place, from the inflammable gas it exhales; 9. Cardinal Flower, *Lobelia cardinalis*, a very elegant scarlet flowering plant, but is in a great measure now supplanted by the *L. fulgens*, of still greater brilliancy; there is also *L. splendens* and *L. speciosa*; 10. *Catananche cærulea*, flowers of a fine blue; Canadian Columbine, *Aquilegia canadensis*, highly ornamental; Garden Wall Flower, *Cheiranthus cheiri*, when double and of a dark color, is much prized; 13. The Red and Scarlet Chelone, *C. obliqua* and *barbata*, very late and pretty; *C. major*, fine peach colored flowers, the most showy of the genus; 14. German Godlocks, *Chrysocoma lincosyris*, with bright yellow flowers in the form of an umbel; 15. *Tritoma media*, produces its beautiful spikes of orange flowers in autumn; 16. Two species of *Monarda*; the Oswego Tea, or *M. didyma*, with scarlet flowers, and *M. fistulosa*, with purple flowers; 17. The Perennial Lupin, *Lupin perennis*, but a more showy plant is the *L. nootkatensis*, and *L. polyphyllus*; 18. Of the Perennial Poppies, the Oriental, *Papaver orientale*, with large,

bright orange flowers; and the Welch, *P. cambricum*, with flowers of a deep yellow; 19. Red Valerian, *Valeriana rubra*, highly ornamental when of a dark color; there is a white variety, which forms a fine contrast; 20. Several kinds of Pæony are magnificent border plants, as the Double Dark Red, and Double Blush, varieties of *P. officinalis*; and the White Flowered, *P. albiflora*, and *P. whilleji*, *P. fragrans*, and *P. humei*, and *P. roseo*; 21. Smooth Leaved Bell flower, *Campanula nitida*, very ornamental, and completely covered with blue flowers. There is a double variety of this, but it is very rare. Of the numerous genus of Asters, with fine blue flowers, the Italian Starwort, *A. amellus*, the Alpine, *A. alpinus*, and the *A. spectabilis*; Ragged Robin, *Lychnis flos cuculi*, beautiful when double; 23. The varieties of *L. dioica*, with double red and double white flowers are very showy; sometimes called Bachelor's Button; 24. The Plantain Leaved Crowfoot, *Ranunculus amplexicaulis*, pure white flowers, in April or May; 24. Garden Rocket, *Hesperis matronalis*, double white and double purple; these are excellent border flowers, being at once both showy and fragrant; 25. Virginia Spiderwort, *Tradescantia virginica*, with fine blue flowers, and with red, and white flowers, blooming from spring to autumn; 26. Asiatic Globe Flower, *Trollius asiaticus*, its rich orange colored flowers are very brilliant; *T. europeus*, flowers fine yellow and handsome; 27. American Cowslip, *Dodecatheon meadia*, very elegant flowers, in May and June. The varieties of the Chinese Chrysanthemums, of almost every color, are particularly elegant. I must not omit the Day Lily, *Hemerocallis japonica*, with fine white flowers, *H. flava*, elegant yellow, *H. cerulea*, with elegant blue flowers and large shining leaves. *Asclepias tuberosa*; also, *Iris palida*, is elegant; and *Gladiolus maximus*, with fine dark red flowers, and *G. natalensis*, with superb red and yellow flowers.

LOW GROWING FLOWERS, FOR THE FRONT OF THE BORDER.

1. Double Purple Jacobaea, *Senecio elegans*; strictly speaking, this is only an annual, but double varieties may be continued by cuttings; 2. Several varieties of Phlox are very ornamental, particularly the common Lychnidea, *P. suaveolens*; the early flowering, *P. divaricata*; awl leaved, or *P. subulata*; and the fine leaved, or *P. setacea*, with *P. ovata*, and *P. stolonifera*, or creeping; 3. The great flowered Siberian Fumitory, *Fumaria nobilis*, is very handsome, and continues long in flower; *F. formosa*, with delicate blush colored blossoms; and the Yellow species, *F. lutea*, is valuable; 4. Common Bloody Crane's bill, *Geranium sanguineum*, is not unworthy of a place; and the striped variety, *G. lancastricense*, and the streaked Crane's bill, *G. striatum*; 5. The Yellow species of Monkey flower, from Chili, *Mimulus luteus*, is an acquisition, and very pretty; and 6. Different species of *Oenothera*, though of humble growth, produce fine yellow flowers, particularly *O. frazeriana*, *O. fruticosa*, and *O. pumila*; 7. Marsh Marigold, *Caltha palustris*, is likewise very showy, and for several weeks makes a brilliant appearance, but prefers a moist border. Feather grass, *Stipa pinnata*, is justly admired for its light, airy and delicate appearance; 8. Violets of different kinds are well known, the Canadian, *Viola canadensis*, is particularly elegant, and the Sweet or March Violet, *V. odorata*, but the large flowered variety is beautiful; 9. The Anemones, with

blue flowers, as the splendid Pasque flower, *A. pulsatilla*, and different varieties of the Star Anemone, *A. hortensis*, and *A. apennina*, and *A. pratensis*; 10. The Gentians are also fine border plants, particularly the *Gentiana asclepiadea*, and *G. cruciata*, both with blue flowers. *Orchis fimbriata* and *O. grandiflora* are fine.

2. BIENNIALS.

Some of the most common are, 1. Honesty, or Satin Flower *Lunaria annua*, both white and purple; 2. French Honeysuckle, *Hedysarum coronarium*, red and white; 3. Yellow Horned Poppy, *Glaucium luteum*; 4. Tree Primrose of several species, *Oenothera biennis*, &c. and Moth-mullein, *Verbascum blattaria*, yellow and white flowered.

FLOWERS FOR ROCK WORK.

Masses covered with Lichens, especially, 1. *Lichen atro-flavus*, *geographicus*, *ventosus*, *perellus*, and *stellaris*, are very desirable. The following are very proper and ornamental; 2. *Cotyledon umbilicus*, and all plants which grow naturally in dry soil are fit for rock work; 3. *Dianthus deltoides*, *D. armeria* and *D. cæsius*; 4. The Red Valerian, *Valeriana rubra*, and the white variety; 5. *Erinus alpinus*; 6. Madwort of different species, particularly, *Alyssum saxatile* and *deltoides*; 7. *Cerastium repens*; 8. *Erigeron alpinus*; 9. *Cyclamen europæum* and *hercynæfolium*; 10. Spring Gentian, *Gentiana verna*; 11. *Soldanella alpina*; 12. *Saxifraga oppositifolia* and *S. granulata*, fl. pl.; 13. *Verbascum myconi*; 14. *Lychnis alpina*; 15. *Primula nivalis*, *P. integrifolia*, *P. helvetica*, and *P. marginata*; 15. Basil leaved Soapwort, *Saponaria ocymoides*; 16. Stone crop, in particular, *Sedum album*, *glaucum*, *rupestre*, *aizoon*, and *sexangulare*; 17. The Cob-web species of House-leek, *Sempervivum arachnoideum*.

AQUARIUM.

In the pond may be placed various marsh plants, as 1. Marsh Calla, *Calla palustris*; 2. Yellow and white fringed Bog Bean, *Menyanthes nymphoides*; 3. The Flowering Rush, *Butomus umbellatus*; 4. Water-Violet, *Hottonia palustris*; 5. The Cat's Tail, *Typha latifolia* and *T. angustifolia*, has a singular appearance. Lastly, some of our own native aquatics, may be recommended for their beauty and fragrance. The Nymphæ, and in particular, the White and Yellow water Lily, *N. alba* and *N. lutea*. The White rivals the rose in beauty and fragrance. Also, though rather tender for our climate, the Chinese *Nymphæa melumbium*.

3. ANNUALS.

1. The Indian Pink, *Dianthus chinensis*; 2. The Winged Thunbergia, *T. alata*; and 3. The Sensitive Plant, *Mimosa sensitiva*, though strictly speaking, biennials, are often cultivated as annuals. Many of the annuals are very beautiful; those of each species only which are the most showy, will be particularized. 4. Elegant Coreopsis, *C. tinctoria*, this is very showy; 5. Beautiful Clarkea, *C. pulchella*; 6. White and Purple Candy Tuft, *Iberis umbellata*; 7. Daisy leaved Catch-fly, red and white *Silene bellidifolia*; 8. Venus's Looking Glass, *Campanula speculum*; 9. Sweet Alyssum, *A. maritimum* are very ornamental; 10. *Convolvulus*, major and minor; 11. African Marigold, *Tagetes erecta*, and French do. T.

petula ; 12. Love in a Mist, *Nigella damascena* ; 13. Variety of Scabius, *Scabiosa* ; 14. Ten weeks Stock Gilliflower, *Cheiranthus annuus* ; 15. The rich and elegant Double Balsams, *Impatiens balsamina*, their capsules are curious ; 16. *Hibiscus trionum*, with yellow flowers ; 17. Many varieties of Larkspur, *Delphinium ajacis*, single and double ; 18. Varieties of Lupin, *Lupinus*, and of 19. Sweet Pea, *Lathyrus odoratus* ; 20. Scarlet Malope, *M. trifida* ; 21. Carnation Poppy, varieties, *Papaver somniferum*, are very showy ; 22. Purple Eyed Crepis, *C. barbata* ; 23. Tangiers Scorzonera, *S. tingitanum* ; 24. The Eternal flower, varieties, red, white, purple and blue, *Xeranthemum*, is excelled by none, its splendid flowers retain their beauty through the winter, and make a fine appearance in vases ; 25. Mignonette, *Reseda odorata*, is universally admired. The following are less hardy, and should be sown in a warm situation and transplanted, to bring them forward early. 26. Amaranth, *Amaranthus caudatus*, or Love lies bleeding, and 27. Prince's Feather, *A. hypochondriacus* ; and 28. The Chrysanthemums, particularly *C. tricolor*, and *C. lutea*. The following are tender annuals, and may be planted early in a hot bed, and transplanted. Crimson Cypress Vine, *Ipomæa quamoclit* ; 29. Many varieties of Cock's-Comb *Celosia cristata*, with scarlet, purple, and yellow heads, are extremely ornamental ; 30. Globe Amaranthus, *Gomphrena globosa*, of various sorts, with the *Amaranthus tricolor*, with each leaf of three colors, bright red, yellow and green, are very showy ; 31. The Egg plant is showy on account of its elegant berry, of the size and shape of a large egg ; 32. The Ice plant is curious, *Mesembryanthemum crystallinum*, its leaves and stalks being covered with crystalline globules like icicles ; 33. And the well known Sensitive plant, *Mimosa pudica*.

CULTIVATION.

The seeds of flowers are sown in the spring, in fine and newly prepared fresh soil. Very fine seeds should be covered but a quarter of an inch deep, larger seeds deeper in proportion to their size ; and the ground is then to be immediately trodden hard ; this enables it to retain its moisture at the surface, which coöperating with the warmth of the sun on the seeds, they vegetate at once.

GLOSSARY.

1. *Acuminate*. Ending obtusely, with a prolonged sharp point.
2. *Alburnum*. Sap wood; the white soft exterior layers of wood.
3. *Anther*. That portion of the stamen containing the pollen.
4. *Aromatic*. Fragrant; spicy.
5. *Astringent*. Contracting.
6. *Axil*. The angle on the upper side between the leaf and stem.
7. *Axillary*. Growing from the axils.
8. *Berry*. A pulpy fruit inclosing seeds, having no capsules.
9. *Calcareous*. Containing lime.
10. *Calyx*. The outer covering of the corolla.
11. *Cambium*. The concentrated sap or viscid substance which lies between the bark and wood.
12. *Capsule*. A hollow seed vessel which opens when dry.
13. *Catkins*. Flowers in tufts arranged on a slender or flexible thread.
14. *Cordate*, or *Cordiform*. Heart shaped.
15. *Coriaceous*. Resembling leather or parchment.
16. *Corolla*. The crown which incloses the stamens.
17. *Corymbs*. Flowers having a flat summit which is formed of numerous flower stalks which arise on a common stem, from different heights.
18. *Crenate*. See *Serulate*.
19. *Deciduous*. Not evergreen; trees whose leaves fall in autumn are termed deciduous.
20. *Dentate*. Toothed; edged with large, sharp points.
21. *Denticulate*. Minutely dentate.
22. *Drupe*. A fleshy fruit inclosing a stone.
23. *Genus*. [The singular of genera] A family of plants which agree in flower and fruit.
24. *Glands*. Small heads or inflated bodies which appear in different parts of plants or leaves.
25. *Glaucous*. Mealy substance which is easily detached.
26. *Globose*. Round or spherical.
27. *Herbaceous*. Not ligneous or woody.
28. *Imbricate*. Overlaying like scales, or the slating of a roof.
29. *Lanceolate*. Spear shaped; both ends very acutely pointed.
30. *Leaflet*. A part or small leaf of the compound or pinnate leaf.

31. *Liber*. The inner layer of bark which lies next the wood. The ancients wrote upon and formed their books of this substance; —hence the name.
32. *Ligneous*. Woody.
33. *Lobe*. A large division of a leaf.
34. *Nerves*. Parallel veins.
35. *Obovate*. Egg shaped, with the smallest end towards the stalk.
36. *Oval acuminate*. Round at one end, pointed at the other.
37. *Ovate*. Egg shaped.
38. *Palmated*. In the form of a hand with the fingers spread.
39. *Panicle*. A loose irregular flower, subdivided into branches.
40. *Peduncle*. The stem which supports the flower and fruit.
41. *Pericarp*. See *Capsule*.
42. *Petal*. The leaf of which flowers are composed.
43. *Petiole*. The footstalk which supports the leaf.
44. *Pinnate*. Having two rows of leaflets arranged on a common petiole.
45. *Pollen*. The dust contained in the anthers.
46. *Pome*. A pulpy fruit containing a pericarp or capsule.
47. *Pubescent*. Hairy; or downy.
48. *Raceme*. Long clusters.
49. *Reniform*. Oblong, oval or lengthened.
50. *Rugose*. Wrinkled.
51. *Serrate*. Notched in a manner resembling the teeth of a saw.
52. *Serrulate* or *Crenate*. Minutely serrate.
53. *Sessile*. Attached to the stem without footstalks.
54. *Species*. The last or lowest division.
55. *Spine*. A thorn growing from the wood. Prickles grow freely from the bark.
56. *Stamen*. The outer circle of the slender filaments which rise around the centre of a blossom or flower.
57. *Stigma*. The summit of the pistil.
58. *Stipule*. Leafy appendages at the base of the leaves or petioles.
59. *Suture*. A groove or channel.
60. *Tendrils*. The twining appendages of vines, by which they attach themselves to supporters.
61. *Truncated*. Having a square termination.
62. *Umbel*. Flowers having a convex summit, with numerous flower stalks of equal length diverging from a common centre.
63. *Variety*. A subdivision of a species, or the lowest division.

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SELECT LIST OF FRUITS.

THE following list of Fruits, having been formed with particular attention and care, is recommended for a moderate collection; and, except a very few of the Apricots and Nectarines, and those very few of the Cherries, &c. which are marked thus †, every one of them have been proved in our country and climate, and are the selections from the very extensive lists of importations and of native fruit. But as a great number of the new fruits of the highest character, and those so lately received, have never as yet borne fruit in our country, and are therefore excluded, it will be obvious that this list will from time to time require a revision. I might here refer in particular to those new and most superior kinds sent to Mr Manning and myself, in the springs of 1834 and 1835, by Mr Thompson, chiefly Flemish, and so lately proved by him at Chiswick in the Garden of the London Hort. Soc., and especially to the noble donation twice sent us during these same years from Professor Van Mons. These alone constitute a collection of about two hundred kinds, all now on trial with us.

The numerical figures refer to the page where each fruit will be found particularly described.

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MULBERRIES.

The Red Mulberry is an excellent fruit, and more hardy than the English Black. I have not yet seen the fruit of the *Morus MULTI-CAULIS*, but it is said to be fine.

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